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JOURNAL

OF THE

MICHIGAN SCHOOLMASTERS' CLUB

FORTY-SECOND MEETING

Held in Ann Arbor, March 27, 28, 29, 30, 1907

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Michigan Schoolmasters' Club

PROCEEDINGS OF THE FORTY-SECOND MEETING HELD AT
ANN ARBOR, MARCH 27, 28, 29, 30, 1907.

EDITED BY THE SECRETARY

GENERAL MEETINGS

The forty-second meeting of the Michigan Schoolmasters' Club began on Wednesday, March 27, with meetings of the classical and modern language conferences. At eight o'clock Professor Gordon J. Laing of the University of Chicago gave a lecture on "The Art of Ancient Etruria," after which was held a reception at the residence of Professor and Mrs. F. W. Kelsey.

The general meetings were held on Thursday and Friday mornings in University Hall. Thursday morning Professor A. G. Canfield of the University of Michigan read a paper entitled, "What should be expected of the High School by the College," and showed the point of view of the University. President J. L. Snyder, of the Michigan Agricultural College, discussed the same subject from the point of view of the college. Principal Webster Cook, of Saginaw, read a paper on "College Influence and High School Development," and Principal N. B. Sloan of Lansing, one on "Education and College Preparation." All of these papers are printed in this number of the Journal.

On Thursday afternoon at five o'clock in University Hall a musical program was given by members of the Faculty of the School of Music.

On Thursday evening in Sarah Caswell Angell Hall an address was given by Professor Charles H. Grandgent of Harvard University, who chose for his subject "Difficulties in Teaching Modern Languages." The manuscript of the address came too late to be printed in this number of the Journal, but it will appear in the School Review. It should be read by every teacher of modern languages. After the address a reception was held.

The Friday morning session of the club was given over to the physics teachers, who showed why the subject of physics should be taught in the

high school and college, and how it should be taught. Professor J. O. Reed, of the University of Michigan, spoke from the point of view of the college, and made it clear that he was opposed to the tendency to make physics a study of phenomenology. Superintendent L. E. Amidon, of Iron Mountain, spoke from the point of view of the superintendent, and Mr. L. S. Parmelee, of Flint, from the point of view of the teacher in a city school. We are sorry that Professor Reed was unable to prepare his paper in time for publication. It should be published and read by all persons interested in physics. The papers of Supt. Amidon and of Mr. Parmelee are printed in this number of the Journal.

On Friday afternoon at 4:45 o'clock, in Barbour gymnasium, the club was entertained by the young ladies of the University, who gave gymnastic drills, and played a basketball game and a baseball game.

On Friday evening in University Hall, Professor Dayton C. Miller, of Case School of Applied Science, of Cleveland, Ohio, gave an illustrated lecture on Polarized Light. The lecture was one of the most interesting and instructive ever given, of its kind, in Ann Arbor.

The most gratifying feature of the whole meeting was the fact that all records were broken in the number of teachers in attendance and the number who paid their dues, and this in spite of the fact that there was no special attraction as there was last year when Sousa's band was supposed to have been the cause of a large attendance and a larger paid membership list. It must be most gratifying to the club to know that it is the solid organization of the club and the excellence of its programs that have placed the club on a sure foundation.

The influence of our club extends over many parts of the United States and Canada. Its membership extends as far west as Seattle, and east as far as Oxford, England. Five thousand reprints were distributed last year and sixty-five hundred will be sent out this year.

Another noticeable change in this number of the proceedings is the change in its name to "The Journal of the Michigan Schoolmasters' Club," and the addition of over two hundred and fifty dollars worth of advertisements. Please look over these advertisements and see who are helping us to publish our proceedings in their present style, and patronize them when you can.

Further information concerning the meeting and especially concerning the different conferences may be found in the program, which is printed in full in the last part of the book.

For the purpose of verification please see if your name and school are represented in the list of members to be found on the last pages of the Journal.

WHAT DOES THE COLLEGE EXPECT OF THE HIGH SCHOOL?

PROF. A. G. CANFIELD, UNIVERSITY OF MICHIGAN.

“What does the College expect of the High School,” is the question of this morning, and I am asked to answer it from the standpoint of the University. In order to forestall any possible misconception I want to say very distinctly at the beginning that I do not assume to speak in any official and representative capacity. What I shall say must in no wise be understood as the expression of a kind of corporate opinion. I have no authority to speak in the name of the university. The answer I shall give to the question is a personal one. I know that many of my colleagues believe in essential points as I do. I should not be surprised to find that many of them do not. For perhaps one of the things that most distinguish the university is the great variety of aspect under which truth presents itself to different men. My answer to the question in hand will then be from the standpoint of the university only as it rests upon the observation and reflection of a university man, whose whole acquaintance with the issues involved has been made under the conditions of the university.

And to be entirely frank I should have to add that it is not clear to me how the standpoint of the university can in this matter differ from that of the other interested parties.

Put in a general way there would hardly be dissent from any quarter to this answer to our question. The college expects the high school, 1st, to send its students well prepared to do the work of the college course; and, 2nd, not to send it any others. These two demands are not quite the same, thought of course very closely related. For even the school that has a proper course of study and fairly efficient teachers—even the approved school, that is to say—is not sure to eliminate the unfit from the number of those to whom it gives its diploma. It is certainly the experience of every college receiving students on a certificate plan that not a few who present high school diplomas at entrance prove themselves in the first half year of their college residence wholly unfitted to do the kind of work demanded of the college student, candidate for the bachelor's degree. This works injury, of course, both to the student and to the college. For the student it means a loss of time and a waste of money; for the college it means an injustice to those who might have profited by the time and attention given in vain to the unfit. The college has sought to insure itself against the mistakes of the secondary school here by imposing an entrance examination on all candidates. This practice used to be general. But the more the secondary school and the college have come to be regarded as parts of one whole, as

members of one system, the stronger has been the tendency to make the secondary school the judge of the attainment of its own students. Those who believe that this is the right way appeal to the weighty example of the Germans, and to the movement in France toward abolishing the present baccalaurate examination. Accepting it, at any rate, as the method generally in vogue as between the high school and the college in this region and as not likely to be exchanged for that of examination. I wish only to point out the responsibility that it puts upon the high school. The college expects that the high school will keep its efficiency well up to the standard; it expects further that it will not be moved by any considerations of favoritism or personal influence or supposed self-interest, to issue its diploma to anyone who has not fully satisfied the demands of its course, and so to smuggle into college one who is as yet not ripe for college work, or perhaps one who has shown himself to lack radically the intellectual or moral qualities that are the indispensable condition of a profitable college course.

But this is so much the less important of the two demands of the college on the high school that I should hardly have thought it worth mentioning at all if I had thought it would in any way draw attention away from the other.

What the college first and always expects and must expect of the high schools is that they send it students well prepared for college work, by a course of training definitely calculated to that end. In this form, as I said, the statement would hardly provoke dissent from any quarter. But this answer involves two propositions that are by no means so sure of unanimous acceptance. The first one is that one of the functions of the high school is to prepare for college. The other is that preparation for college, to be satisfactory, may require a course of training very systematically organized from beginning to end and definitely adapted to its purpose.

To the first of these propositions, viz., that one of the functions of the high school is to prepare for college, an exception may be taken by those who emphasize the importance of other aspects of the high school's work. It is certainly true that but few comparatively of those who receive the instruction of the high school continue their education in college. For the vastly larger number the high school is the highest school they will ever know. It gives them all the mental discipline and intellectual training they are ever likely to get. Of those who enter the high school not one-half graduate, and of those who do, the larger number go at once to the business of making a living. For much the larger part of its pupils therefore the high school has not to prepare them for a further course of intellectual discipline, but to give them such training and instruction as, in the absence of any further privileges in this direction, may best help them to live their lives with satisfaction to themselves and with advantage to the community at large. No one, I fancy,

is inclined to deny that the high school must consider its duty most seriously in the light of these facts. But these facts do not obliterate nor supersede the other fact, that a not inconsiderable proportion of the graduates of the high school do go to college, and that our system of public instruction gives to the higher institution of liberal culture as real and organic a place as to the secondary school or to the primary school, expressing so the conviction that this higher institution of liberal culture is as necessary and vital to the real educational needs of the commonwealth as the grammar school. I trust it is quite superfluous in this presence to defend the reasonableness of this conviction. The high school is then a link between a lower and an upper member of the educational system, and can not disregard its duty as such without virtually destroying the system.

It is sometimes urged, however, that in working out our system in practice we ought to proceed from the lower to the higher in such way that the higher is constantly conditioned by the lower. According to such a conception each year exists for itself, and builds such a structure as it will and can on the foundations which the previous year has laid in a similar way. The grammar school does the best it can as a grammar school, as if the educational course were to end with it. The high school then takes up the work and does what it can and will as high school. And at the point where it leaves off—at any of the points where it leaves off—the college must begin. I do not see how such a conception can be upheld. If interpreted strictly it involves such consequences as that there can be no long foresight in the educative process, that the successive portions of the course should be laid out without any view of the ultimate goal, that no studies should be undertaken that did not promise to yield immediate fruits, that the value of a study could not be rated by reference to its importance as a preparation for studies to be undertaken later but must be rated solely according to its direct usefulness for the more immediate purposes of the pupil. Few would be inclined, I think, to maintain these propositions. This view is prone to overlook or to minimize the place which intellectual discipline has in the preparation for the serious intellectual work that the college demands. The preparation for college means not only an acquisition of information, of knowledge, but a training and disciplining of the faculties. The mind must by practice attain, as far as may be, ease, swiftness, certainty, accuracy of movement. The power to fix attention on one point must be developed; the ability to follow one subject persistently as it unfolds before one's study, correlating the new facts to the old ones, till by and by one grasps the plan and outline of a whole, must be cultivated; nicety and exactness of discrimination must be acquired. In short the student must be drilled and practiced in the efficient and ready use of the intellectual tools, for it is by these that his tasks are to be accomplished. If he be not skillful in the use of these tools, stores of

information will not avail him; he will be ill prepared to do what will be demanded of him. For many of the courses of study that he will take up in college information derived from his previous studies is not essential. If he continues his mathematics or his language, he must have, of course, a certain fund of accurate knowledge in order to go on with success. But for all alike the disciplined mind is equally necessary, and in all it will soon outstrip the undisciplined mind in spite of any initial inferiority in special information. Now the view of the high school that I have mentioned takes little account of this as its gaze is fixed more particularly on the immediate relation, as it conceives it, of the high school work to the practical needs of life. It frequently asks the question: Of what use will this subject be to you? What good will you ever get out of your Greek or your French or your Algebra or your Botany, if you are going into a store or an office as soon as you get through with the high school? It is likely to choose a number of different subjects touching closely upon the material problems of existence, rather than one subject that may be pursued continuously through a number of years. Yet the importance of the latter for developing and disciplining the mental faculties is generally recognized. Four years of Latin or German or mathematics are better than two years of each of two languages, or two years of mathematics and one year each of two other subjects, or than one year of each of four different subjects.

Once more, the view of the high school now under examination overlooks the important fact that there has grown up historically among the peoples of our civilization a certain form and standard of intellectual culture and scientific training. The people that fails in its educational system to connect with this standard of higher training is doomed to inferiority not only in the intellectual and scientific rivalry of our time, but eventually in the industrial and economic rivalry also. The relation between Germany's present industrial position and her higher education is a text that points many a sermon. It is probably well known to you that industrial enterprises in this country depend on Germany in no small degree for the high technical knowledge that is the indispensable condition of their success.

Nor let it be objected at this point that in this country we have an individuality in our national life and ideals that forbids us to hope to find our needs met by the adoption of the educational system of any other people whose temper and circumstances are very different from ours. So much will be granted by all. I even believe that the admiration for the achievements of the German system of education, with all its inspiring and stimulating influences upon our scholars, has had some unfortunate effects upon the shaping of the parts of our educational plan. The attempt to equate the terms of our system with those of the German organization has resulted in no little confusion of ideas and is responsible for many serious mistakes in practice and some of the strik-

ing anomalies of our present situation. But this objection does not touch the point I have made. We may be convinced that to impose a foreign model on our school system would be fundamentally wrong and even quite impossible, and yet be just as sure that the standard of efficiency and attainment that is achieved in one system will have to be applied to the other also. In other words, there can be no international and universal model and type of best school or system, but there can be and there is an international standard of results in intellectual culture and training; and no school system can disregard this standard without serious consequence to the intellectual power and accomplishment of the people it serves. It is unfortunately generally recognized that our schools are less efficient than those of Germany, and that a boy there before he has finished his preparatory course has got two years the start of his American rival.

I maintain, then, that it is an essential function of the high school to prepare for college by a course of study having definitely in view the ideals of efficiency and attainment of the higher intellectual and scientific training. This is, of course, the view that the college has always asserted, and that underlies our present practice. It is expressed in the formulation of certain requirements for admission to college. By these requirements the college exacts not merely a certain amount and duration of previous instruction, but the pursuit of certain specified subjects, in a fixed sequence, and to a fixed degree of proficiency. Not everyone who graduates from a high school with a diploma, is thereby certified to the college as fit, but only those who have pursued with success a course very definitely composed and arranged for the purpose of giving them both the discipline and the special knowledge that they will need.

But while this view that it is a function of the high school to give students preparing for college a specially planned preparation, different perhaps from that which might be regarded as most advantageous for others, is virtually asserted in the requirements for admission to college, it may be questioned whether the requirements actually made present a consistent and complete application of the principle. It would seem as if the principle had not been worked out without some confusion of ideas nor applied without some hesitations and compromises. This is seen not so much in the fact that these requirements are not the same among all colleges, for after all there is a very large degree of uniformity among them, as rather in the latitude for choice and variety within the groups of required subjects. Thus the requirements for admission to the University of Michigan read very much like those of the University of Wisconsin or of Yale. But there is so much room for making different combinations of the subjects included among the requirements that two candidates presenting themselves for entrance at the same time may have had very different preparations. Seven units

of the required fifteen are indeed specifically named, to illustrate by means of our own university; three in English, three in mathematics, and one in physics. But the remaining eight may be chosen from a field so large that our two candidates may present no subjects outside of the specified seven units in common.

It is clear that in these wide variations permitted in the training preparatory for college there is a distinct departure in the application of the principle from the practice of the German secondary schools and of the French lycée. This invasion of the optional system into the college preparatory course would be regarded there as a source of dangerous weakness. And I think it is safe to say that this departure from a consistent and strict application is less the result of a theoretical modification of the principle than a yielding to the pressure of conditions in the high school and the desire to accommodate them. I do not know how it may have been here in Michigan, but in Kansas, where I was for many years, I know that in defining its requirements for admission the university more than once considered not what course would best prepare for the college career, but what course the high school could offer and care for in a fairly satisfactory way. It would be well, it seems to me, for the college, in stating its requirements for admission, to mark in some way a difference between the course of preparation which it formulates as best adapted to prepare for its work and those which it consented in the first place to accept only because under the circumstances they were the best the high school could offer. If the college regards four units of Latin, or German, or mathematics, as decidedly better in the way of preparation for the intellectual tasks of college than two years of each or than one year of four different subjects, were it not well to make that opinion so clear and conspicuous as to guide the practice of students? And if a given high school is able to afford the better preparation why should a college accept the poorer from it? Is not the college entitled to expect always from the high school the best preparation that it can give?

I have been contending for the importance of that part of the high school's duty which concerns the preparation for college, for the necessity of considering preparatory courses with strict reference to this end, and for the place which disciplinary studies must hold in such courses. I might refer to several recent and weighty utterances of observant and thoughtful men that directly or indirectly reveal the suspicion that all is not as it should be in this direction, as, for instance, the Columbia address of Mr. Charles Francis Adams. I have already mentioned the more or less generally accepted opinion that our American schools, regarded as preparatory schools for higher liberal or professional training, take two years more than those of Germany or France to achieve the same result. Let me cite two witnesses whose testimony supports in different ways my contention for the great importance for the ends of our educa-

tional effort of the definitely planned college preparatory course. The first is found in the Educational Review for March, 1907, under the title: Why is public education in the United States not as successful as it is in Germany? I quote only those parts of the answer which concern the present issue.

"The last defect in our educational system that deserves mention is so destructive, so blighting in its effects, that Germany will marvel at its very existence. I refer to the educational fallacy that children may be entrusted with the selection of their own subjects of study. The reader should not laugh at this; it is actually the case in the secondary schools of our country. Just imagine what would happen if the elective system were introduced in the *Quarta* of the Gymnasium or the Real-schule. The proposal would be received in Germany with scorn and ridicule. * * * *

"In the university, freedom in the selection of studies is perfectly proper, but children of fourteen do not possess the necessary insight into cause and effect, they do not know what is important and what is not, and in making a choice they consequently consult their convenience, their inclinations and their dislikes. They are apt to inquire: "Which is the easiest course?" As the rage for play penetrates the entire school system from the bottom up, so the elective system trickles down from above. The school itself becomes the shuttlecock of mere whim and caprice. Whenever I think of this phase of the subject, I am reminded of my little daughter, who said on one occasion, when eight years of age: "Papa, when I am grown up, I shall have every meal in my house begin with dessert."

In another passage, speaking of the astonishing advances of the Germans in technology, commerce, and industry, in fact in all fields of human activity, the writer says:

"A second open secret lies in the circumstance that the Germans always provide the requisite preliminary courses at every stage of their educational system. The secondary school, no matter what its nature may be, rests upon a thorough system of elementary instruction. And similarly the university and the technological school rest on a thorough preparation—from eight to ten years in length—secured in the secondary school, which may have classical or technological trend. This progressive preparation from the first stages, official, paternal foresight, which looks into the future with an ever watchful eye, prepares for the commercial success of the nation, just as the Prussian general-staff prepared for the war with France. And that is something the American does not understand. We secure our intellectual work from without. Our secondary schools hardly provide the instruction of a German high-grade school, and consequently do not prepare the university student sufficiently for a comprehensive professional training."

The other witness that I wish to summon is that acute observer of

American life and ways, Professor Hugo Muensterberg of Harvard University. In some remarks on the question of spelling reform in McClure's Magazine for last November he says:

"And this inability of the large mass of American school children to do anything accurately goes on thruout the high schools and into the colleges. It cannot be otherwise. Where the habit of strict mental discipline is not acquired from the very first, intellectual disorderliness becomes habit. The student may read much, may be industrious, and may absorb immense quantities, but they do not master anything completely. Whoever feels an earnest interest in American education ought to give to this lack of carefulness and discipline his most immediate attention; from that point alone can we reform and build up. There alone is the trouble that makes the American school-boy two years behind the German:—because all careless and inaccurate learning is a loose, inefficient and time-wasting learning. The child must go scores of times over the same old ground, and the teacher must waste endless energy and time with dreary repetitions, simply because the child has not acquired from the start the ability to give full, concentrated attention to the material of study. If he gave spelling and arithmetic only half the attention which he is used to give to practical things for instance to baseball, then the school children would stand well in line with German children, and no spelling reform would be needed as a new scheme to coddle their lazy attention."

I will sum up my answer to the question proposed, then, as follows: The college expects the high school to recognize the preparation of pupils for college as an essential and important part of its duty; to give serious thought to that part of its duty, considering it by itself and not confusing it with any of the other parts of its duty, reflecting how best the pupil may acquire the disciplined powers even more than the special knowledge without which his college course and after training cannot much profit him. And it might turn out that even for those who do not go on to further privileges but go at once to the work of the busy world this disciplining of their intellectual powers would be a no less valuable asset than a smattering of this or that branch of knowledge.

And I cannot forbear to suggest one thing more than the college might expect of the high school. May it not expect the high school to send its graduates to the college with something like a true notion of the nature and function of the educative process along which it has been leading them and upon a new and ampler stage of which it sends them forth? I should like to have them come looking to their college not as an ally in seizing and appropriating the gross and material goods of the world, as an abettor in getting ahead of others in the struggle for personal success, but as an *alma mater*, a kindly and benignant mother, who would point them not only to knowledge but to wisdom, who would fortify in them all generous impulses, who would form in them moving

ideals of justice and goodness, beauty and truth, who would clear their vision to discern what are the real and abiding springs of delight, to the end that they may live a freer, ampler, saner life, fuller of ideal content and of meaning.

DISCUSSION BY PRESIDENT J. L. SNYDER, MICHIGAN AGRICULTURAL COLLEGE.

The university and the college stand practically in the same relation to the high schools. They both admit graduates from affiliated schools to the freshman class of their undergraduate courses. They both depend largely upon the output of the high school for their students. In this respect their interests are the same. The address to which we have just listened no doubt represents the attitude of the university and of the most of our colleges on this subject.

The high school, as you all know, is a modern product. Colleges and primary schools existed many years before the high school. They are a western product and they serve the place of the academy of the eastern states as a preparatory school, and also fill a much broader field in the way of giving opportunity for a better training to a great body of young people who do not expect to go to college.

As they take the place of the eastern preparatory school, they have, to a large extent, been modeled after the New England academy. Their courses of study have been planned and outlined largely to meet the demands of preparatory students. The principals of our high schools and our school superintendents have received their training in colleges and universities. They have been ambitious to induce their students to go to college. They have made a great effort to prepare them to enter the higher institutions of learning, and in order to make it easy for them to enter these institutions, they have arranged their courses of study to meet the demands made by the faculties of the higher institutions.

The effort, however, has not been alone on their part. The institutions of higher learning have inspected these schools, have advised as to courses of study, and have insisted that certain requirements should be fulfilled in order that their students might receive easy passage into the college or university. In other words, our high school courses have been planned for the boy who expects to go to college.

We were told a few years ago by the distinguished committee of educators known as the "Committee of Ten" that the training which would prepare a boy for college was the best possible that could be given to a young man who did not expect to go to college. This was the interpretation placed upon it by the trained educator. A jury composed of business men would perhaps render an entirely different verdict were the case submitted to them. But, strange as it may seem, the business men and the patrons of the school have very little to say concerning the course of study.

When the great coal strike was inaugurated a few years ago we heard both sides of the question—the coal baron on one side and the poor miners on the other. But when we ourselves began to shiver and could not secure fuel, we began to realize that there was a third party to the affair. Eventually this third party became so insistent that the other two parties got together and effected a settlement. We are often led to believe that there are but two parties concerned in the high school course, namely, the high school faculty and the college faculty. In other words, the high school and the higher institutions of learning. When our own children, however, reach the high school age we begin to feel that there is, or ought to be, a third party who should have something to say concerning this question.

Two citizens living side by side, both taxpayers, may send their boys to the same high school. The high school learns at once that one of them expects to go to college; they have the course all ready for him. He is carried along through high school with all the encouragement and help possible. The other boy signifies his intention of returning to the farm or of becoming an artisan when he finishes the high school course. The high school has nothing to offer this young man. Of course he is told that the best possible training for him is to take the course that the other boy is taking. He does not believe it; his parents do not believe it; nobody believes it but some expert educator. It is about time, it seems to me, that the third party should be heard in this case.

I believe that our high schools should prepare young men to enter college; they should serve as a connecting link between our primary schools and our higher institutions of learning. At the same time I believe that their main effort and their great effort should be with the 90 per cent. of young people who do not expect to enter college; indeed it would not be advisable to urge such a course upon them.

The growth of the course of study in the secondary schools has been a great evolution, both in the amount of time necessary to complete the course and in the subject matter given. We must remember that a quarter of a century ago there were comparatively few high schools. The courses of study were very narrow and very meager. In a marvelously short time we have developed great institutions; their number has multiplied with a rapidity which astonishes us. It is entirely too soon to say that the high school cannot offer to a great body of students the training which will fit them for their future occupations in life. I believe that the curriculum of the high school should be so broadened as to include a good commercial course, a course in domestic science and domestic art for young women, a good course in manual training, and also an elementary course in agriculture for those who desire it. These should all come in as germane parts of the course.

I would not make the course entirely elective. There are certain basic subjects which every student should pursue, but I would allow

fit in to his future occupation. The high school must conform more nearly to the demands of modern life if it is to meet with the public support which it deserves. It is preparing young people not specifically to enter a learned profession but for a hundred professions. It has been broadly called "The People's College." It should be as ready to help the young woman who expects to take up the domestic duties of the home as the one who expects to enter a university. If Latin is good for one, household economy should be good for the other and she has just as the student and his parents to select such lines of work as are liable to much right to expect it. There should be no aristocracy in learning. The boy who expects to be an artisan has just as much right and should be entitled to as many privileges in the high school as the fellow who expects to go to Harvard.

Frankly speaking, it is not the business of the high school principal to encourage one any more than the other. He should encourage high ideals, clean life, and urge every student to reach his highest possible attainments, but a good, high-minded, energetic, capable farmer is a greater benefactor to his race than a poor lawyer or a physician without patients.

What we need in this country is earnest, capable, well-trained men in every walk of life. There are too many misfits; too many men who have been encouraged by their teachers to enter professions for which they have no natural ability. Of course, as long as the high school insists on devoting its best teachers and best equipment for the benefit of the students who are expecting to enter college, it is very natural that they will try to induce pupils to enter such courses. My belief is that manual training, elementary agriculture, domestic science and commercial courses should receive as much encouragement and as capable teachers as are now employed in those departments of work which prepare students for the higher institutions.

I believe also that our high schools should broaden their work in another way. It seems to me that an effort should be made to change their hours in such a way that a student may attend half a day and work the other half, preparing his lessons at night. There are a great many students compelled to drop out of school who could complete a course if such a plan were adopted. They should also open these buildings for evening classes. In addition to the large number of young people who cannot, for economic reasons, attend the day school, the great body of students now in our Y. M. C. A. classes and registered in our correspondence schools should be taken care of in our high schools. The work could be done better and with less expense to the students. They are entitled to these privileges. The evening school should know no age limit and the severe grading of the day school should not be carried out. High schools with good manual training departments could offer mechanical drawing, shop work, mathematics and cer-

tain phases of engineering which would attract students by the hundred six evenings in the week.

I believe also that there should be courses offered in our high schools—perhaps evening classes—which would give students of mature age a chance to make up for lost opportunities. Many boys at the age of fourteen drop out and go to work. Sometimes the exigencies of the family compel them to do so. At other times they follow their own inclination. They are tired of school. Learning has been drummed into them from the first grade to the eighth, and when we see the routine that these students have been through two hundred days in the year for eight years, we do not wonder that they are tired of the whole business. When they reach the age of nineteen or twenty they see the great mistake they have made, but the opportunity for high school training is gone. They cannot enter the high school. I say they cannot because you know that it is practically impossible for a nineteen-year-old boy to come in and take his seat and go through the humdrum work with the thirteen or fourteen-year-old boy. Further than that, he is capable of doing twice as much work as the thirteen-old-boy. This is true in every subject with perhaps the exception of a foreign language. If he is given an opportunity at the age of nineteen or twenty, he will, in two years, practically do the work that will require four years of the time of the boy who starts in at thirteen.

It seems to me that our high schools could well afford to make some provision for this class of young men. Every city is full of them. They are hungry for knowledge. A great many of them receive considerable help from correspondence courses; a few of them from Y. M. C. A. classes, but a great body of them, I feel certain, would take advantage of practical courses if they were offered by our high schools.

If courses were offered for young women in domestic science and domestic art there would be no difficulty in securing students. There is a class of young women which corresponds to the class of young men just described. They have missed their high school training. They would be glad to take advantage of opportunities offered in the lines of work in which they are interested. Classes in cookery for servant girls; in sewing and in millinery would, I believe, attract large numbers and, it seems to me, are entirely legitimate for the high school to undertake.

There is another proposition which the high schools will be called upon to meet very soon. It seems to me that it is only a question of time until part of the work now offered by our colleges and universities must be done in our high schools. The great number of young people who are anxious to receive college training cannot, in the course of a few years, be taken care of in our colleges and universities unless these institutions are duplicated very rapidly. Our denominational colleges do not have the means to duplicate their buildings and equipment, and it is not at all probable that the state will furnish the funds necessary

for our state institutions to meet the increase in attendance. If the ratio of increase in attendance which has been experienced by our large state universities during the last decade is continued for two or three decades in the future, the attendance will run anywhere from ten to twenty-five thousand in our larger institutions. Even were the state willing to put up this money would it be advisable to congregate such a large body of young people at one center? It seems to me that the probable solution of the matter will be that our best high schools will increase their course of study to six years, and in this way practically relieve the higher institutions of the first two years of their undergraduate work. I can see no reason why this should not be done. The state with its primary school fund has rendered very substantial assistance to our public schools. The local communities are relieved of a large part of the burden. The high schools could do this work practically as well as it is now being done in our higher institutions. This would require, of course, considerable outlay for laboratories and for teachers of somewhat higher grade, but at the present time the teachers of our best high schools will compare very favorably with the instructors in our higher institutions.

I can see no reason why the first two years of the undergraduate work could not be done very satisfactorily in our high schools. When we think of the evolution of our high schools during the past twenty-five years, the addition of two years does not seem, in comparison with past progress, as any very great undertaking.

Provided our high schools would broaden their course of study as indicated, then what should be the attitude of the college toward them? Namely this: it should take the high school graduate who has done four years of faithful work and enter him without conditions. If it does not have certain courses which will attract him, it should so modify its courses as to admit him. Of course it would not be possible to admit every student to every course. The course that he would take in the higher institution would depend largely upon the course he took in the high school. The former would govern the latter, but he should be admitted and permitted to continue his work.

The only requirements demanded by the higher institutions should be that the applicant has had such training as would enable him to pursue successfully the course upon which he desired to enter. Power, training, the ability to do, should be the test rather than a specific amount of knowledge of some certain or particular brand.

The high school should give its students such training that it would not be necessary to look up to the higher institutions and say: come down and help us fix up our course so that we may be placed on your favored list. The college has the right to insist that the high school send it students not only of sufficient training to successfully carry college work, but they should be young people of high ideals and pure,

clean lives. No institution supported by taxation has a right to open its doors to young men of bad habits or doubtful character. Young men who carouse around saloons and bet their dad's money on ball games have no claims on the generosity and privileges of an institution supported by a generous, patriotic, law-abiding citizenship. The institutions of higher learning stand for the very best in our civilization. Only those who measure up to the highest standards should have a place within their walls.

COLLEGE INFLUENCE AND HIGH SCHOOL DEVELOPMENT.

PRINCIPAL WEBSTER COOK, SAGINAW, E. S.

The education of the child is a process of such a nature that it must always proceed by steps or grades. These grades must conform to the processes of growth, and beginning in a very elementary way, the child must pass upward through them until he reaches the years of maturity, when, from other demands made upon him, if for no other reason, the distinctively educational process must cease. All children do not pursue the full course, but in the full course as now established and generally recognized there are sixteen grades or years of work. Of these the first eight or lower grades constitute the so-called elementary schools; the next four, the secondary schools; and the four highest grades, the colleges. Michigan was the first to establish a public school system covering the entire field, and to bring all of its various parts into touch with each other. Other states have followed in her footsteps very closely, however, and the relations thus established between elementary, secondary and higher education, have profoundly influenced the corresponding relations throughout the whole country.

This, our completed system of education is a very recent one. The last steps toward bringing it into its present form are matters of recent memory, and the whole system, so far as we are now concerned, has been created within the span of a single lifetime, though of course the elements out of which it was formed are much older. It is this system and some of its various relations that we have to consider.

The way to create such a school system would seem almost necessarily to be to begin with the elementary schools and add grade after grade to these until the whole was completed. And in a measure this has been the actual method of development. The elementary schools were first established seventy-five or eighty years ago, and our secondary

schools, or our high schools as we call them, were developed by adding higher studies onto their curricula. Our high schools then were in their origin simply a development from the schools below, formed to carry forward a little farther the work which these schools had already begun and this is still their fundamental character and purpose.

Had this seemingly logical course of development been followed throughout, the college would stand in precisely the same relation to the high school and there would be no need of this paper and no question of college requirements. The whole matter would be simply one of classification. The pupils would pass forward through a continuous upward grade of work for the whole sixteen years. Each grade, or group of grades called a school, would take the pupils where the last left off and carry them forward through its portion of the common task of the whole system which fell to it to do. The course would be built solidly from the foundation up, and whether or not we called the first eight years of this continuous work elementary education, the next four secondary and the last four higher, or whether the classification fell in some other way would be a matter of expediency only and a question of relatively small importance. Wisdom and experience would adapt every stage of this work to the students with which it had to deal and to the grade of their development, and we might have as complete and smooth an adjustment between secondary and higher education as now exists between the elementary and secondary.

But history is quite apt not to follow schemes of development that we would lay down, and in Michigan history has only repeated itself. Colleges are very much older institutions than secondary or even elementary schools, and the University of Michigan antedates our oldest high schools by decades. Moreover colleges as colleges have a long history, with certain common traditions and habits, and traditional ways of looking at and doing things. They were not a development from schools below but separate and distinct institutions, fixing for themselves their own method of work, their courses of study, and the requirements that must be met in order to enjoy their privileges.

Into this inheritance of spirit and method the University of Michigan came, as did all our other colleges. At first there was no thought of their relation to the other public schools of the system. They established their standards of admission, and finding no students prepared to meet these requirements in this crude commonwealth, they established preparatory schools of their own, which were their only feeders at first, and are still the most important feeders of some of the colleges. As far as the University is concerned academies were her chief source of students for about the first half of her history, and it took her nearly half a century to begin to realize, what she does not yet fully realize, her actual relation to the rest of the public school system.

It was during the period of the preparatory academies established

by the University authorities that the high schools came into existence. They came, then, not as preparatory schools, that need was already met, but simply as a further development of the elementary schools, to carry forward, as has been said, the work these had already begun. They were established to meet the needs of the students of their respective communities. Prospective college students had hitherto been a special distinct class, set apart for a special purpose and undergoing a special preparation of a traditional kind for their future career. But in the public schools were great classes of pupils who did not have these special aims or whose aim in life was not yet fixed and who yet wished larger educational opportunities than elementary schools afforded. They cared little about traditional studies, and preferred to deal with more modern subjects, a fact that determined the earliest character of the secondary schools, as the earliest course, had a practical aim rather than a scholastic.

Thus there came to be two classes of schools covering the same field but with different aims. But it did not take long for this situation to develop into a very different one. High schools soon showed that they could also do college preparatory work. More students began to want to go to college, and so to meet the needs of a considerable class of the very students for which they were established, high schools had to undertake such work. The high schools and academies thus came into direct competition, with the advantages all on the side of the high schools; for they were home institutions and from the first free. The academies soon disappeared, and the high schools in the state, as in all the west, are the main secondary schools and almost the only ones.

With the disappearance of the academies we can begin to see that the position of the high schools was somewhat peculiar. They had hitherto had great freedom of development. Based firmly, as they have always been, upon the elementary schools, they could take up the work where these schools left off and carry it forward in whatever direction seemed most needful, most wise, and most pedagogical, ways that in the long run will be the same. But now they must shape their work according to college requirements on the one hand and on the other are brought under the influence of college men. That the high schools have been greatly modified as a result, no one can for a moment question. What has been the nature of this modification?

In the first place let us notice that when the high schools gave up their freedom, as they effectually did, they made one very great gain. Their scholarship was greatly improved, especially on its technical or so-called scholarly side. They have done a more accurate and learned kind of work than they would have done but for this dominating influence from above. It has long been the boast of the University that it has been of enormous advantage to the high schools because of the very requirements it has made of them, and in this respect the boast has the fullest possible foundation. The standard of scholarship is higher today

than it would be but for the University influence, and still somewhat higher than in most of the adjoining states.

On the other hand some things must be said. The benefit has not all been on one side. If high schools have profited by college demands and college influence, the Colleges, and especially the University, have enormously profited by the fact that the high schools are the preparatory schools. That great horde of students at the University, which gives it rank among the very largest institutions of the kind in the country, could not possibly be here, were it not for the fact of free preparation in the public school systems of our various cities. A college must have students, and in spite of the domineering attitude often assumed, is absolutely dependent upon the schools from which its students are derived.

Then even that gain of scholarship is a gain in time rather than in positive fact. Scholarship would have come to the high schools anyway, although very much more slowly. They would have worked out their own ideals and in the end would have been scholastic centers. In many of our city high schools the *Esprit de Corps* has already developed far beyond what would have been brought about by direct college influence, and in time it will in all. Our corps of teachers will in time assume something of the character of those in European secondary schools.

Beyond this there came a positive loss to the high schools from the college influence. As we have seen they were developing naturally and freely from the schools below. The problem of what they should do and how they should do it was purely a pedagogical one. It was for superintendents and principals to weigh carefully the conditions with which they had to deal, find what would most fully subserve the interests intrusted to them and shape the development of their upper grades accordingly. This was what was being done, and experience would have gradually led the first crude efforts to sounder results. But this process college requirements violently and forcibly interrupted. Moreover at the time when college requirements were first imposed upon the schools, they were mainly traditional requirements. They were not based upon pedagogical principles, they had no reference to the evolution of the youthful intellects, they looked not at all to modern conditions of life or to modern requirements. They were an inheritance from a past when our modern insight into the real nature of things about us was almost entirely wanting. They determined the development of high schools in certain fixed, traditional and narrow lines and have hindered them from doing much for their respective communities that they long since ought to have accomplished.

This cramping influence is still going on. The larger schools can disregard to some extent entrance requirements. If they have students and teachers enough they can lay out courses that do not lead to college and add departments of work with which the colleges have no concern.

But with the general arrangements of the curricula, and adjustment of studies as experience might seem to indicate, college requirements still interfere, and even the largest high schools of the state plan their courses with one eye always on college requirements. By the same requirements the small high schools are absolutely bound. I am free to say that this is an unfortunate relation for both the schools and the colleges and based upon an entire misconception, as I shall attempt to show later, of what should be the relation of the various parts of our public school system.

Before passing to the consideration of the final phase of our subject, one other element of the situation needs to be brought to our attention. It is not simply that college requirements now hamper high schools within their own proper sphere of action, but college influence absolutely predominates in the whole internal economy of high school work. The subjects to be taught are determined by college men; in the various formulation of units of work, now being attempted all over the country, college men are always in control, and thus determine the subject matter as well as the subjects themselves. All our text books, or nearly all, are the product of members of college faculties, few indeed being produced by secondary teachers. Even the methods of study and of teaching the colleges have managed to prescribe. College men are active and aggressive everywhere, through associations and committees, in seeking to control the studies in the secondary schools and in determining the subject matter and the methods of instruction.

The results from these conditions cannot be expected to be happy and they are not. Some of our secondary studies are old and the results of long experience and are pretty well settled into the forms they must always have. But others are new and we are still uncertain as to what their character should be. What they are at present is being determined by a class of men in no position to determine properly, and whose predilections are sure to lead them in the wrong direction. College influence, for example, has given us our present courses in history, which are professedly based, not upon the work to be done for the pupils, but upon the nature of the subject to be taught. College men have prescribed the work in English and have crowded back upon the secondary schools problems that, if they belong anywhere, belong in the later years of the college course, and there is no one from President Elliott down who does not decry the character of the results. College instructors have imposed their own methods upon secondary instruction in Botany, Zoology and Physics until these studies, though they ought to be most attractive, have been made most uninteresting to the pupils; to say nothing of the effect of the scholastic influences, also emanating from professorial chairs, on the study of the classical languages. The truth is that with one exception, the lack of thoroughness, the fault of all our school system, elementary secondary and higher, the most important

evils in secondary institutions today come from the fact that studies and methods are imposed upon the schools by men unfamiliar with secondary conditions and ignorant of what are really secondary aims.

And in all this the fault lies with the secondary teachers themselves. They are entirely too modest. They lack self confidence and need self assertion. They are overawed by the prestige of the college men and yet the college men are only a part of the same great body of educators to which they themselves belong. They forget that their part of the general educational work is quite as important and quite as dignified as any other. They forget, what is the fact, that the great body of secondary teachers are more skilful as teachers than their more learned brethren. They forget that secondary problems belong to them to solve, and they, because they are the only ones familiar with the conditions, needs and aims of secondary work, are the only ones by whom real solutions can be found. And secondary conditions will not improve until the teachers themselves learn to put greater reliance in their own judgment, and, casting aside extraneous influences, address themselves with confidence and courage to overcoming the difficulties which now beset their work.

From the whole trend of this paper it must already be evident that, in my opinion, the great need of secondary institutions today is emancipation from college control and influence. The restrictions of college entrance requirements should be removed and college influence should no longer predominate in the solution of secondary problems. In the end the colleges would profit if such a course were taken, because, unhampered by outside influences, secondary teachers would soon make their work more effective. But whether colleges would profit or not, it should be remembered that high schools are not primarily preparatory schools. As we have already indicated they grew out of different needs in the first place, and a large majority of their students never go to college and never intend to go. College preparation is only one portion of their work and a subordinate one. Their great function is the preparation of their students for their life work, as a majority of their students go directly from their halls to the serious business of life. Their function in the great complex of society is to prepare for one grade or kind of life work, as the college's is for another. This fact was pointed out with great emphasis several years ago in a paper read by Professor Henry C. Adams before the North Central Association of Colleges and Secondary Schools and he further emphasized the fact that we are now insisting upon, that the secondary schools should be left untrammelled in their development and unhampered in their adjustment to meet the great requirements placed upon them.

What then about college entrance requirements? Two questions now arise. One is the old one. Is not preparation for college after all as good as any other preparation for life? If based on present condi-

tions, such a question shows inadequacy of conception. For in the first place college entrance requirements are narrow and based on the wrong idea of the situation. They are not nearly as broad as the secondary field of instruction, and they actually leave out studies just as good as required ones educationally, and of much more practical application to the daily demands of life. And then one great fact is wholly ignored. All students, at least all secondary students, are not cast in the same mold, and when they get into the actual walks of life, they will not all be doing the same things, nor the same kinds of things. One may be very clever and effective in one way, and very awkward and defective in another, and what is good preparation for one person may be utterly worthless for another. These differences in pupils are not imaginary or superficial nor such as can be overcome or disregarded. They are differences in temperament, in intellectual ability and in the kind and quality of intellectual action. They are deep, inherent characteristics, arising from the very nature of the mental structure and they must be taken into account in any properly adjusted course. Thus a properly equipped secondary school, if it is large enough and has faculty enough to meet the requirements of its position, must be able to furnish work for all the different kinds of students that come to it? Occasionally a student enters the high school who does not seem to be capable of any further education. Most of our students however are capable of education but not all of the same kind of education, and all should be able to find in the curriculum those things best adapted to meet their needs. A school cannot fully meet these demands, if bound by conditions enforced upon it from an external source, and for a single and special purpose.

The second question is, Shall the college then cease to lay down entrance requirements? This question arises from the fact that we must not lose sight of. While it is not their main function, the high schools do a great deal of college preparatory work, and this they must continue to do. In the west, in fact, they are the chief preparatory schools. For the great bulk of students who now go to college could not go at all, were it not for the opportunities for preparation, free of cost, which the high schools afford. Should the college then in order to leave the high schools untrammelled, do away with all entrance requirements, and take the students as the high schools send them? Most of the college men would object to this proposition, though one college president has advocated it. But really does not the right of determination here rest with the colleges? Have not they the right to make such requirements as they think best as the condition of enjoying their privileges?

Thus stated the question applies differently to different institutions. The independent colleges can undoubtedly do as they please, and impose such entrance conditions as they choose. But the state universities are in no such position. They are a part of a large system, and just as the high schools must take up their work where the elementary schools

leave off, and do not as a fact fix their own requirements for admission, so the State Universities, by virtue of the fact that they are State Universities, the crowning part of the State educational system, should take up the work where high schools leave off and carry it forward to its proper completion. It is not for them to dictate, but for them to accept. They must yield to the conditions which the system imposes upon them.

But we are approaching the question from the wrong point of view, and when we see it in its real light, we shall see that the colleges, state or independent, are really on the same basis. We have already noted the fact that educational work here in America has settled itself into a continuous course of sixteen grades. This entire course, unless with a possible exception of a year or two at the end, is or should be a course of education rather than of instruction. That is, the primary aim all the way through should not be the imparting of information, the teaching of certain subjects or certain facts, but development, the leading out toward maturity of the immature minds for which the course was constructed. Its governing principles are therefore psychological. It is not what we would like to teach in any given grade, or how, but what is the best fitted for the accomplishment of what needs to be done at that stage of the student's progress. From the same psychologic or pedagogic fact arise our limitations. We cannot introduce subjects at one stage that are perfectly proper at another, and we cannot use methods at one period that earlier or later may be perfectly appropriate. There are things that a high school can do and things that it cannot do, a fact of which our college critics are so easily forgetful, and its limitations are the degree of maturity of its pupils. It cannot put old heads on young shoulders. It cannot get a degree or quality of mental action which belong to later years, and which the lapse of time alone can bring about.

When, then, high school students have reached what we may call the age limit, not of years but of maturity of mind, then the college should take them; but it should not take them before. Before that limit the high school should deal with them entirely, and without interference from any outside source. The wisdom and the experience of its teachers are by far the surest guide of what should be done.

What the college needs then is not a standard of studies but a standard of maturity in the mental activity of its students. What this standard shall be, again, is not something for it to determine, an arbitrary dictum, such as we have hitherto had, derived from tradition or based on a narrow view of the present situation, but a standard arising from the necessity of the case, and determined by the actual experience of the schools themselves. The schools left to themselves should do, and would do, all they can within the twelve years covered by their curriculum. There is lost time somewhere now. Ultimately they will find and correct this. When they have done what they can, the higher institutions should take their students and carry them forward just as

they take the pupils as they find them from the elementary schools. That high schools shall come up to a proper standard in the character of their work there of course must be some way to ascertain. But what they should do, and how, should be worked out, not by what the colleges wish to impose upon them, but by a careful study of their own conditions, their real aims, and the mental characteristics of the pupils.

EDUCATION AND COLLEGE PREPARATION.

PRINCIPAL N. B. SLOAN, LANSING.

My theme, "Education and College Preparation," is suggestive, at once, of the two classes into which the entire student body of our high schools is today divided: namely, those who finish their school education with a part or the whole of a high school course and pass at once into some line of business, and that other class, which is a rapidly increasing per cent of the whole, who are using the high school as a means of preparation for college.

Perhaps it would be well at the outset to define clearly the sense in which the word education is to be used in this discussion. While I am personally entirely out of sympathy with that venerable platitude, that "Education is preparation for life;" and, while I feel that school men have heard the changes rung upon that phrase until it has become a weariness to the flesh; and, while I entirely agree that "Education is life itself," yet for the purposes of this paper it seems necessary to confine the term to the former and only partially complete significance.

Just what claim the high schools may properly have to apply the term educated, even in this restricted sense, to its graduates is a matter which does not need to be discussed here. The stubborn fact remains that, as yet, a very considerable per cent of our product are so applying the term to themselves and it is being applied to them also by a very considerable per cent of the general public. For this large portion of our students our duty is clearly to make their high school courses such as shall give them the very broadest culture, the very highest stimulus to further any individual study and, in short, to fit them, as far as possible, for the largest, clearest, sanest outlook upon the problems against which they will soon find themselves hurled with all the relentless indifference of busy, competitive, hurrying humanity.

Unfortunately for those of us whose chief interest in the educational problem centers about the question of the highest efficiency of the high school for those whom it is called upon to serve, the matter may not be dropped here, but we must go one step further and take into account still another class of students, who, either because they are unable to keep up with the procession, or because of indifference or

the formation of bad habits and bad associations, or often because they are obliged to drop out of school in order to contribute to the support of themselves and family, or even that more serious possibility which, Banquo like, troubles the minds of the conscientious school men, the possibility that the right chord in the life of the boy or girl has not been touched and thus they have not been awakened to the possibilities within and before them. I say, whatever the cause, there are always those who enter the high school and only continue for one or two, or occasionally, but not often, three years, and then drop out. While I would not for a moment argue that our courses of study should be shaped to accommodate this class especially, yet, these we have always with us and they are entitled to some consideration, and, whether we would or not, we are obliged to recognize the fact of their presence and must do all that we can for their welfare, present and future.

The demand of such students as these of whom I have been speaking, either those who do not finish, or those who finish the high school, but go no further, that their high school work shall be made practical and of the greatest value to them in the work which they may be thrown into, is a real and reasonable demand and cannot justly be cast aside. Please note in passing that I use the word "practical" in a guarded sense and in no wise as synonymous with utilitarian. From that school of curbstone philosophers who would make of our schools mere trade schools and who would convert our manual training courses into carpenter shops, and our commercial courses into short cut business colleges and who are continually complaining that our students are not fitted to do some particular and specific work, from these, and others of their kind, may the good Lord soon deliver us. One of the fiercest combats which this age is flinging into the teeth of the school men is the challenge to contend against the spirit of pure commercialism which is sweeping over the land. I shall refer to this later in another connection, hence will not pursue the matter further at present.

On the other hand, what of the students who are fitting for college? As I have before remarked, this part of our student body is a rapidly increasing per cent of the whole number. That this statement can be made without challenge is due to several causes and, since this has a bearing upon the subject at hand, I shall mention some of them. First, the multiplication of colleges and higher institutions of learning has brought within reach of a very large number the possibility of a college education, and, as the students from these institutions have multiplied, the so-called learned professions, that is, teaching, the ministry, the law, etc., have become overcrowded, and gradually these graduates have filtered down, or up, depending, I suppose, upon the point of view, into practically all other lines of industry; and, as time has gone on and the new adjustments have taken place, these college men have been found outstripping their fellows in the race for success, until a vigorous and

correct reaction against the old time dictum, that the college bred man is unfitted for other lines of work than the learned professions, has taken place and a general recognition of the fact that one must come into competition with this new demand for college men has occurred. Thus young people are being stimulated, at home and elsewhere, to make plans to continue their education.

Again, the close affiliation between high school and college and the fact that the high school graduates may enter college without the dread ordeal of the examination, thus making the transition easy and uninterrupted, has been no small factor in the increased college enrollment. This may perhaps seem like a small matter at first, the mere escape from entrance examinations; but that the dread of an ordeal of examinations may prove an effectual bar to a college course is, I believe, a fact. You have doubtless heard the story of the college president who, one night, began groaning and sighing and seemed to be passing through some dreadful nightmare. His wife finally awakened him and inquired, "Why, my dear, what can be the matter?" "Oh, oh," he replied in a bewildered sort of way. "I was having such a terrible dream. I thought the regents had just passed a resolution requiring all of the faculty from the president down to pass the entrance examinations." So I contend that this close affiliation has reacted favorably both for the high school and the college, in a largely increased enrollment for the college and as a specific stimulus and a definite end and aim as a result of high school work.

It should also be noted in passing that, as our country has grown older and the years of unexampled material prosperity have multiplied, the possibilities of acquiring an education or of completing a college course have for that reason also largely increased.

So all of these causes and others which might undoubtedly be enumerated have resulted in very materially reducing the number of those who finish their education with the high school and, I doubt not, one might go farther and say that the same causes have materially reduced the number of those who drop out of school before the completion of even a high school course. This would undoubtedly be a just and logical conclusion. I suppose the world must always have its "hewers of wood and drawers of water" and there will probably always be those who are content to dig the ditches and sweep the streets. Could we only complacently close our eyes and rest back comfortably upon this assumption and say, "'Tis only the continued operation of the great law of the survival of the fittest." We might thus escape from a world of unnecessary responsibility: but, unfortunately for our fancied security, under the operation of this same great law, the unpromising caterpillar becomes the beautiful airy butterfly and the vastly improbable anthropoid begets the lordly and all conquering man.

Thus the high school must ever remember the twofold nature of its obligation and it cannot neglect the one in an overzeal for the fulfillment of its obligation to the other.

This, then, leads us to the main inquiry, namely, do the courses which are the resultant of the college admission requirements satisfy, equally well, the needs of the other class of students, and what are the changes, if any, that high school people should ask for in the future. I realize that I am now upon ground where it is easy to be misunderstood. I do not wish to be classed as an objector or as being in an attitude of criticism. Neither do I desire to leave the impression that I am entirely satisfied with the present conditions. To complacently settle the question is therefore not my intention, but rather what I desire is to raise some questions which, in my judgment, we would do well to consider in a calm, and by all means cordial manner, arousing no antagonism; but, on the contrary, tending towards an increased harmony in the already mutually helpful and advantageous relations. Being a high school man and having my interests and my knowledge largely confined to that side, I must of necessity present the matter from that point of view.

The first difficulty and I think the greatest one that the high school people meet is the variation in the specific requirements which are laid down by different colleges or even by different departments in the same institution. This difference is not so serious a matter when we consider only the colleges of the west. The work of the North Central Association in unifying these requirements has been of vast value, not only to the high schools, but, I believe, to the colleges as well. But when we come to consider the schools of the east and those of the west and especially when one begins to come up against the requirements of the women's colleges of the east, then the difficulty at once assumes serious proportions. May I have your forbearance in becoming specific and mentioning some of the exact instances which I have in mind. Our western requirements make a year's work in physics an absolute demand, while a majority of the eastern schools are not so particular about this. Some, and particularly the women's colleges, though they will accept a year's work in science as a substitute for a minimum requirement in a third language, still seem decidedly to prefer that that science shall be chemistry. Again, a year's work in biology and a half year of trigonometry are made specific requirements in certain departments of our own University, while in the east these sciences are not demanded and in some instances not even accepted as credits on the list at all. The absolute requirements of Vassar, Holyoke and others of four years of Latin and three years of a second language, either Greek or German, has, until recently, been met in the west by a refusal to accept the third year of any language. This, of course, as I suggest,

has recently been relieved. Solid geometry is required absolutely by most of the western institutions, while in many of the eastern, credits will in no wise be accepted in this subject.

It is not at all difficult to understand, from the point of view of the college, the significance and indeed seeming justness of the various demands. We can all appreciate why the woman's colleges place so much emphasis upon the languages and prefer chemistry to physics, and why the medical college is asking for biology and the engineering school trigonometry. Nor would these matters be so serious to the larger high schools with broadly elective curriculums could we only know when a student enters school just what particular school or profession he or she intended to prepare for. But just here lies the difficulty of the whole matter. This we do not, and, in fact, much more frequently than otherwise, cannot know, and this for the very excellent and natural reason that the child or his parents have no definite knowledge on the subject themselves.

Now, just here, it seems to me lies a somewhat important and serious question. I am not at all certain that we have any right to expect to know this or even indeed that it is wise to attempt to settle the question at so early a period. To force upon a child of the age of our ninth grade students the settlement of the very important question of his or her life work is, in my judgment, at least in the very large majority of cases, unwise and impractical. If the question were simply one of looking over the field, arranging the vocations in a row, closing one's eyes and choosing or could the eeny-meeny-miney-mo process be adopted with satisfactory results, this question would be simple. I think, however, that we are all agreed that choosing a life work is a vastly more consequential affair than this, and that too often the choice is made in some haphazard sort of way. Emerson, I believe, is authority for the statement that, "Every man has his vocation. The talent is the call. There is one direction in which all space is open to him. He has faculties silently inviting him thither to endless exertion. He is like a ship in a river; he runs against obstructions on every side but one, on that side all obstruction is taken away, and he sweeps serenely over a deepening channel into an infinite sea." My experience with high school students extends over several years, and in that experience I can recall but two instances of talent so marked that one could be absolutely certain as to just what direction that life was sure to take. It is always a safe proposition to say to the student, "You should plan to go to college;" but to be compelled to say to them, "I must know just what college or group of colleges, at least, you expect to attend in order that your course may be modified to meet their demands, is a matter which, it seems to me, is not always wise or feasible. It is my experience that many students do not conclude that they will attend

college at all until well towards the end of a high school course, and, in fact, it not infrequently happens that the decision is arrived at after the course is completed. I have known several instances in which students have about come to this conclusion and have then found that the course they took did not satisfy the demand and that fact has proven a decisive factor in changing their decision. Of course this does not happen often, but the fact that it does ever happen at all is, to say the least, unfortunate. Just here I wish to refer once more to the contest between education and the spirit of commercialism. Is it not a fact that the matter of specialization is in danger of being carried too far in these modern times, and does not our present educational system tend to promote this? I fancy we all will agree that the trouble does not lie in the specialization, but rather in the tendency to begin that specialization, too early, and produce men who may know a great deal along their particular line, but whose general foundation has suffered in a corresponding ratio. Now, my contention is simply this, could the colleges and the higher institutions of learning, both in the east and in the west, those for men and those for women, be brought together and could their specific requirements be made uniform and their elective units be made to cover a slightly larger field and include some subjects which are now excluded generally, such, for instance, as economics and commercial geography; then we could say to our students, "Prepare for college. Plan to have a college course." "This course will suit you equally well, no matter whether you go to college or not." Thus we could leave the question of what college or what particular line of work to later years and maturer judgment and thus, I believe, the interests of all would be better and more satisfactorily conserved.

HIGH SCHOOL PHYSICS.

SUPERINTENDENT L. E. AMIDON, IRON MOUNTAIN.

There are two general standpoints from which any high school subject may be discussed,—one from the standpoint of the subject and the other from that of the pupil. The specialist will, almost invariably, look at it from the former vantage, the parent and the superintendent always from the latter. High school instructors will vary between the two, depending upon the degree of specialization, and often upon their experience. Many a young teacher has begun his high school work with his eye single to the subject he is to teach, only in later years to have his center of interest shifted to the pupil. It will clear matters to state that my view point is that with the pupil as the center. I am little interested in physics as a science, only so far as it contributes itself as a

suitable study for high school pupils. I am, however, in no manner hostile to the subject. I enjoyed it as a high school and college student and taught it in the high school he first two or three years after leaving college. Since then my interest has been that of a city superintendent who regards it as one of the best of high school subjects but by no means the only one.

But even with the view point fixed there are two methods of handling the subject. The one is by giving an expression of individual opinion, the other by getting a consensus of opinions from many who are likely to have the same view points. The latter method has many advantages, not the least of which is that a conclusion if reached has the greater weight. But the difficulty is to reach a conclusion. There is usually a difference of opinion on each point, and at times at least it seems that the many override the wisdom of a few. If one consults himself alone, he can, at least, reach a decision. This paper is the expression of an individual opinion only. It must be taken only for what it is worth. If I am too dogmatic I excuse myself on the ground that I am willing for everyone else to have his opinion, and to be just as dogmatic in return. Those preferring the consensus method are referred to the reports of the "Physics Committee," of which C. R. Mann is chairman.

I would have physics appear as a separate secondary school study at two different periods,—once in the seventh or eighth grades and the other in the eleventh or twelfth where it is usually found. I would have elementary physics and chemistry in the seventh or eighth grades for two reasons,—one because the elements of each appeal so strongly to the minds of pupils of that age and so stimulates their observing and thinking powers that it would seem a crime to withhold them; and second because, in most schools, so few will ever reach the eleventh or twelfth classes. The seventh or eighth year is widely preferable to the ninth or tenth both on account of a much larger number receiving the desired instruction, and on account of the already over-crowded condition of the ninth and tenth grades. In the seventh and eighth grades there is plenty of room. In either of these grades the subject can take the place of geography much to the benefit of the pupil. The masses of details which many pupils learn of Asia, Africa and some parts of Europe and even America, can well give way to the common physical phenomena surrounding them. Our geographies are too bulky, and too much like encyclopedias to be used as texts. They are better reference books and teachers should use much of the matter as reference and teach the pupils to find things rather than to use them as a text to be mastered. With proper teaching by judicious selection a pupil in grades from four to six inclusive can learn all the geography he will ever need in life.

The method of handling physics in the seventh or eighth grades

will necessarily differ considerably from that of the eleventh or twelfth. In nearly every case the number of pupils per teacher will not be less than thirty-five or forty. This in itself precludes individual laboratory work by pupils, both on account of the cost of equipment and on account of not having, in most buildings, suitable and large enough laboratory rooms. But individual laboratory work is not the *sine qua non* by any means. A teacher by performing the experiments before the class, aided by various members of it, may secure almost as good results as by pupils performing individual experiments. The true test of efficiency is the degree of mental activity the teacher arouses in the pupils. The teacher by skillful questioning develops the conditions, the actions, the results. To be sure the matter is understood pupils are asked to explain and perform the experiment. A limited amount of note-book work is desirable, but not too much,—not enough to be a burden to the teacher or pupil. The main object should be to develop observation and thinking on the part of pupils; note-book work that hinders this had better be left undone. A text—any one of the several designed for grammar grade pupils—is almost indispensable as a basis for work, as the making of a text throws too much burden on the teacher. Four years' experience with elementary physics in the last half of the seventh and first half of the eighth grades convinces me that it is practicable, and one of the most inspiring and valuable of grammar grade subjects. It must be taught, however, and adapted to the pupils of these grades, and not with the thought of its being a preparation for high school physics. Everything beyond the ability of pupils of these grades must be cast out; and the facts learned must be fixed by frequent cumulative reviews.

In the main, are two objects in the teaching of high school physics. The one is to build up the mind of the pupil a body of useful knowledge that will add to his general intelligence and effectiveness; the other to furnish to the mind, food suitable for causing growth. In a way, these are but two phases of the same thing, for we cannot well imagine a person securing useful information without exercising the mind; nor can he exercise the mind without securing knowledge. A minor object, with some, is specific preparation for college. This should not be the controlling aim in planning the work, for but a small percentage of those in the high school take the college work, and, anyway, the best preparation for college is secured when the work is so selected, arranged and presented that the pupil will have a steady but progressive mental growth.

The place of physics in the eleventh or twelfth grades is a matter of choice. But if placed in the former grade it must be clearly understood that the work done must be more elementary than if placed in the latter, and in any case some topics that can be taken in the twelfth grade had better be omitted if the subject is taken in the eleventh.

The question of time depends partly upon whether the pupils have taken an elementary course in the eighth grade or not. If they have, five periods per week of forty-five minutes each, continued for one year would appear sufficient. If no preliminary course is taken at least six periods per week should be allotted. Of this, about one-third should be given to individual laboratory work. This, of course, would be augmented by considerable laboratory work done by teachers and pupils in the class recitations, when one or two would perform an experiment before the whole class and for the benefit of all. At least two of the individual laboratory periods should be consecutive. This is easily arranged, at least I have found it so and have used the double period for the past four or five years.

There can be little doubt that there is a very considerable waste in the individual laboratory work and the note-book work. In the first place too much time has been given in the past few years to quantitative work. Quantitative experiments are great time consumers. A pupil should have enough of these, say ten or fifteen, so that he will know the painstaking way in which many of the facts of physics are established. But he should not be required to discover anew any considerable number of these facts. A not-excessive number, say thirty to forty, qualitative experiments can be performed to advantage to help fix the principles involved and to accustom pupils to the handling of apparatus. The laboratory work conducted by teacher or pupil before the whole class should be, in the main, qualitative and for the sole purpose of helping the pupils comprehend and fix the facts. The total amount of laboratory work should not exceed half the time allotted. One of the greatest weaknesses of the present day teaching of physics is that no sufficient time is given to the interpretation and discussion of the experiments performed. The pupils do not see the bearing of the experiment to the topics under discussion. When one asks what the experiment really means, he is frequently astonished at the lack of grasp shown by the pupils. A great deal of the laboratory work is not properly digested. Less laboratory work and a better understanding of what is done would be a distinct gain.

The note-book is another source of loss in time. Very frequently pupils who are weakest in the grasp of any subject are likely to hand in the neatest and most attractive note-books. The make up of the book is largely a mechanical process and this mechanical work appeals to many. Not infrequently the facts are borrowed from some other pupil, so the book merely expresses so much time consumed by its compiler. I would limit the number of experiments written up to twenty-five or thirty. I would have the teacher of physics in conjunction with the teacher of English devise one or two suitable forms for pupils to imitate, I would insist that the experiments, when written up, be legible and neat,

and arranged and expressed in a logical manner. The report should state the purpose of the experiment, the apparatus used with the method of work, results of measurement when quantitative, and the conclusions reached. The books should go to the teacher of English as well as to the teacher of physics. Pupils of this age should be able to follow accepted usages in English and no description of an experiment should be accepted which would not look well if printed in the local newspapers.

There can be but little question that the amount of subject-matter in most of the texts is too great for one year's work if given in the fourth high school year, and much too great if the subject is taken in the third year. There are not only too many topics, but some are too difficult for pupils of this age. When it is stated that some topics are too difficult it is not meant that most pupils cannot be made to comprehend them, but rather that it is necessary to us an undue amount of time and energy to make them clear. An illustration from arithmetic will show what is meant. Are stocks and bonds too difficult for eighth grade pupils? There is no doubt but that eighth grade pupils may be made to understand them quite thoroughly, as most every superintendent can testify, —but it is at an enormous expense of time and energy on the part of teacher and pupils. Two or three years later the pupil will grasp the idea in half the time and then is when these topics should be taught, if they ever are. Much of the mathematical work of physics and many abstract parts, especially some of the units, like dyne, erg, etc., can only be mastered after time and effort out of proportion to their value to the pupil. If the necessary time be given to these so that they are mastered and can be used to advantage too little time will be left for other equally important topics. Again, these abstract and difficult parts, even if made plain are not made sufficiently strong and used enough to stay with the pupil any length of time. They are learned by straining the mind and never become part of the mental makeup of nine-tenths of the boys and girls.

But even after the parts clearly too difficult have been eliminated there remains still far too many topics. The best results are certainly not gained by skipping from one to another. Sufficient time must be given to thoroughly comprehend and assimilate. Examples and illustrations should be so multiplied until the pupils consider the facts as well known friends and not as chance acquaintances. This means still further elimination of topics. How can it best be done? It seems too much to hope that text book writers will have the courage to make a text simpler by omissions, although such a text would be welcomed by a host of superintendents and physics teachers. The most practical way, it would seem, is to set minimum time limits on the various general divisions of the subject,—say two months on introduction and mechanics, six weeks on electricity and magnetism, and one month on each of the

remaining divisions. This will leave from two to three months to the teachers for review, and for extra work in any or all of the divisions as may seem to him best, depending upon his own interest, that of the pupils and the equipment of the school. Within these minimum time limits let the teacher select his topics, taking enough to give the pupils a general idea of the subject, and not taking more than can be fully worked out and thoroughly assimilated by at least nine-tenths of the pupils. This list of topics might vary slightly from year to year, thus giving the teacher a slight change which often would be a good thing for him. It would certainly be a relief from the prevailing pressure, the pupil would get a general idea of the whole field of elementary physics, and could become thoroughly conversant with the topics chosen.

Objections to such a scheme would naturally arise from two or three sources. One class of objectors would be those who think we must have uniformity in all things. All pupils in America according to these people must take the subject in the same year, with the same time restrictions, exactly the same topics, perform the same experiments, record them in the same way, and so on, *ad finitum*. But if the true aim of education is to develop and train a human soul it will be well to bear in mind that excessive form often kills the spirit, and, outside a general agreement as to the amount of work it is best to allow each teacher and school to work out its own destiny. Another class of objectors are those who conceive thoroughness to be, not the mastery of a number of related topics, but the mastery of all possible related topics. These people should be reminded that choice, and consequent neglect of many related things is a principle of successful living. The student or person who does not have the happy faculty of cutting out many things which press forward and claim his time and attention is doomed. He will always dwell in the land of details, and will never be an organizer of facts or of actions. And while on this point let it be said that this power to select is, as a rule, woefully wanting in teachers. They teach by the page; if one year is needed with a text of three hundred pages, two years is needed if the text contains six hundred pages. It is almost impossible to get a teacher to select, so grounded is the feeling that thoroughness means to teach everything.

As stated previously the work should be simplified and sufficient topics eliminated so that at least nine-tenths of the class can secure a mastery of what is attempted. But in every class there is a stronger one-third or one-fourth. Not infrequently the work of the whole class is planned in reference to this section. It should not be, and yet they should be properly provided for. Every subject, including physics, when taught successfully arouses interest and enthusiasm. Interest and enthusiasm are not the aims of the teaching but are necessary results. This means that the stronger pupils will be in the spirit to push further

into the subject. It is easy by means of their own text, or by a few supplementary texts to induce them to take up other related topics each according to his abilities and spare time. If these pupils are given a little time occasionally to explain by experiment or otherwise to the rest of the class what they have learned it will not only help to fix facts in their minds, but inspire them, as well as occasionally lead other members of the class to put forth more effort, to learn of the world about them. In this way every member of the class will have work adapted in quality and quantity to his needs, and this is the ideal to be aimed at in all class work.

To recapitulate, viewing the matter from the standpoint of the pupils themselves, I would have elementary physics in the seventh or eighth grades, the pupils to have a text, the experiments to be performed before the whole class by the teacher and pupils. For the physics in the eleventh or twelfth grade, I would allot five or six periods per week with at least one double period for laboratory work. The individual laboratory work should have at least one-third of the time and never more than one-half of the time allotted to the whole subject. Not more than fifteen quantitative experiments, nor more than twenty-five qualitative experiments should be required of every pupil. The note-book work should be limited and passed upon by the teacher of English as well as the teacher of physics. The subject matter should be diminished by the omission of the most difficult parts and still further by the selection by the teacher from the remaining topics so that each division of the subject will have at least a month (introduction and mechanics two months, and electricity and magnetism six weeks). The topics taught must be dwelt upon until thoroughly assimilated by at least nine-tenths of the pupils. The brighter third should be given supplementary and advanced work, the whole object being to give the pupils a useful body of related knowledge in the manner that will most conduce to a healthy mental growth.

When I was in college we used to have local oratorical contests. The boys somehow got it into their heads that the judges always favored those who had abstract subjects. A friend of mine when asked what his subject was to be jokingly replied that he had about concluded to take as his topic "The Unclutchableness of the Infinite." After writing this paper on physics I have felt some fear about the decision of the judges. It is so lacking in abstractness, and in discussion of psychological principles. It is hard to write a paper from a philosophical standpoint when you do not believe there is such a standpoint. The whole thing, to me, amounts to this. The American high school has grown gradually to be what it is. At first the course was simple and consisted of but few studies and but little science. Other studies most of them worthy, have crowded themselves in and seem likely to stay. Science is only one line of school work, and physics only one subject of that line. The others

are equally important. The amount of time that can be given the subject is limited. Along with the stricter limitations of time have come more and more difficult texts on the subject. New topics have been introduced, and old topics expanded. But the boys and girls are about the same. While the work has been made at least thirty per cent. more difficult in the last twenty years, the pupils' reasoning powers have remained about the same. As a result we have reached if not passed the danger point. There must be fewer topics required. There must be better assimilation of what is taught. The blame falls on no one class of individuals. College teachers of physics, not realizing the immaturity of high school pupils have frequently asked too much. High school teachers, often fresh from college and associations with older minds, have asked too much. Text-book writers have at least suggested too much. Superintendents have frequently accepted the attainments of the few as that of the many. But laying aside the blame, we are considering the remedy. As for me, I can see no better plan of action than that suggested in this paper.

A TWO PART COURSE FOR HIGH SCHOOL PHYSICS.

MR. L. S. PARMELEE, FLINT.

I have been asked to state our "conclusions from a trial of the two course plan for a year of high school physics." Perhaps a word of explanation as to the nature of the course would not be out of place.

In June, 1904, a committee appointed to investigate the daily physics schedule of several prominent high schools, presented its report. It mentioned the plan of dividing the work so that the entire subject should be gone over twice during the year. We have modified the plan somewhat, as follows. The first course during the first semester to be required of all seniors and to include a discussion of all the divisions:—properties, mechanics, light, etc., of the subject taken up from the informational point of view. Taking up such problems as seem necessary to an understanding of the facts.

The second course in the following semester to be elective and to take up the same subjects again, except properties, from the theiry point of view, including the detailed explanation of phenomena, derivation of formulae, discussions of theories with reviews and talks on the first semester's work.

Two years ago there came up in our high school the question of placing physics on the elective list. No one doubted the importance and educational value of the subject, but the fact remained that a certain class of students, in other ways seemingly entitled to graduation found

the year's course in physics more than they could satisfactorily accomplish.

This new plan suggested that the students who has little aptitude for science would drop out at the end of the first semester after having gained a knowledge of important facts first hand, or that the student who imagined the subject dull would find it one of unmistakable interest.

The class taking the second course would be prepared to do the best of work, the unqualified having dropped out. Last year we found the plan worked well. The interest manifested by the second semester class was fully equal to that of the first course class, notwithstanding the change in nature and intensity of the course. This year the scheme worked even better than last.

Last year 97 per cent. of those passing the first course elected the second, but this was evidently abnormal. It may have resulted from a fear on the part of the instructor that the plan wouldn't work as expected and that there would be no second course class. The few students who did drop out were among the weaker ones, but not as many were eliminated as could have been desired, so that the remaining undesirables would not act as a drag for the rest of the class.

This year 80 per cent. of those passing the first course elected the second. Of these 92 per cent. are students undoubtedly qualified for the advanced course. An average of two poor ones in sections of 23 can not be considered as very damaging to the interests of the class. Of those that dropped out about 8 out of 10 were students that would surely have failed to pass a full year's work. Evidently this represents the normal working of the plan.

The plan allows time for the fundamentals to be assimilated. Later an application of them means much more than would otherwise be possible.

We believe after two year's trial that the subject taught this way gives more and better knowledge to both the poor and the good students.

It decreases the number of failures, adds much to the interest, and does away largely with the dread of the subject that some students seem to inherit, without robbing them of the right to one of the most interesting and helpful courses that the high school has to offer.

EXPERIMENTS WITH THE ELECTRIC FURNACE.

MR. W. M. MILLS, BATTLE CREEK.

We have two furnaces, one a small one such as those used by dentists, the other a larger one made of fire brick. I will describe the latter.

The cavity where the arc is at work is small, not larger than the

hollow of the hand, partly taken out of each brick. The lodes penetrating to the cavity fit through channels in the bricks quite tightly, one however, fitting rather loosely to allow the escape of gases generating. The lodes are fitted to porcelain tubes to thoroughly prevent short circuiting. Some resistance is necessary so a liter bottle three-fourths filled with acidulated water and a three hole rubber cork is used. Through two of these holes are introduced the copper terminals of the wires peeled clean and the third hole is for the escape of the gases, which are here formed. Now by slowly separating the lodes before sealing up the materials one can get an arc from one-half inch to three-fourths inch. The heat accumulating in the cavity will be sufficient to perform any general experiment such as the making of lime or carborundum.

Exp. 1.—To Make Lime:

Place a few pieces of marble in the lower cavity. Adjust the electrodes and seal up the cavity. Soon a bright yellowish-red reflection may be seen through the porcelain tube. This is the calcium vapor. In a few minutes the marble will be transformed to lime.

Exp. 2.—To Make Carborundum:

Heat for one-half hour a mixture of sand and coke with a little salt. The characteristic blue crystals of carborundum will be obtained.

Exp. 3.—To Make Carbide:

Make a mixture of lime and coke, about two to one. Place in the cavity and heat for 15 minutes. Carbide will be found. Test for acetylene.

DUFF'S APPARATUS

PROFESSOR E. A. STRONG

Normal College

The piece exhibited was a superior form of a grooved inclined plane proposed by Professor A. Wilmer Duff and manufactured by the Cambridge International Company. A simpler and far less effective form was proposed in 1871 by Professor Hinrichs of Iowa State University, and was occasionally seen about that time.

The ball times itself down the inclined plane by rolling from side to side of the groove. Thus friction is eliminated and a timepiece is not needed. It needs to be rigidly fixed, and the ball should be delivered by a special mechanism. The piece is fully described in *Science* for Oct. 26, last.

The piece was not put into action except to show that when the groove is dusted with lycopodium a very definite and easily seen sinuous trace is left by the rolling ball, along the median line of which measurements may be made with accuracy. The law of spaces is easily derived or confirmed, but

the speaker did not recommend its use in high schools for finding "g," as the discussion is beyond the high school pupil.

From Carhart's University Physics, Part I, Art. 66, we learn that force multiplied by lever-arm equals angular acceleration multiplied by moment of inertia. But force $= mg$; lever-arm (about B) $= r \sin \theta$; angular acceleration (about B) $= a \div r$; moment of inertia (about A) $= \frac{2}{5} mr^2$; moment of inertia (about B) $= \frac{2}{5} mr^2 + mr^2$. Therefore $mgr \sin \theta = (\frac{2}{5} mr^2 + mr^2) a/r$. Whence $a = \frac{5}{7} g \sin \theta$. This value must be used instead of "g" in work on the ball as a pendulum. In the above discussion A is the center of the ball, r the radius, B the point of contact with the plane, and θ the angle between the radius and a vertical through the center, which must equal the angle made by the plane and the horizontal.

The piece should be rigidly fixed and the ball delivered by a special mechanism.

REPORT OF COMMITTEE ON A REVISED LIST OF EXPERIMENTS IN PHYSICS FOR MICHIGAN HIGH SCHOOLS

The Committee appointed by the Physical Conference at its meeting in March of 1906 beg to submit the following list of exercises for the High School Physical Laboratory and to suggest that the minimum requirement be forty of these exercises, equitably distributed over the several divisions of the subject, twenty-five of those chosen to be quantitative in character.

H. N. CHUTE,
C. F. ADAMS,
C. W. GREENE,

Committee.

The report and suggestion of the Committee were adopted, and the Committee was instructed to prepare a priced apparatus list to accompany the report. The Committee in presenting the accompanying apparatus list, wish it to be understood that *good* and *efficient* apparatus can be obtained of responsible dealers at the prices quoted, and furthermore that apparatus for the forty exercises need not cost more than \$100.

H. N. CHUTE, Chairman.

I. SIMPLE MEASUREMENTS.

- I. *Linear*:—(a) Metre-rod; (b) Diagonal scale; (c) Vernier caliper; (d) Micrometer caliper.

Apparatus:—Metre-rod, brass tipped, graduated to *mm.* on one face and to tenths of an inch on the other, \$0.30; Dividers, \$0.25; Diagonal scale, boxwood, metric, \$0.15; Vernier caliper, 10 cm. long, reading to $1/10$ mm., \$2.00; Micrometer caliper, fitted with friction head, reading to $1/100$ mm., \$4.00; Magnifier, \$0.25.

2. *Volume*:—The Graduate and Burette.

Apparatus:—Conical graduate, 250 cm³., Eng. and Met., \$0.50; Cylindrical graduate, 100 cm³., double reading, \$0.80; Erdmann's float, \$0.35; Burette, with glass stopcock, 25 cm³., \$1.25; Burette support, \$0.50.

3. *Mass*:—The Balance, beam or Jolly.

Apparatus:—Beam balance, agate bearings, without case, capacity 100 gm., sensitive to 1/2 mm., duty free, \$12.50; Same, with glass case, duty free, \$18.00; Weights in box, .001 mgm.—50 gm. good quality, \$2.50; Jolly balance, mirror scale, \$4.50.

Six Problems.

II. PROPERTIES OF MATTER.

1. *Elasticity*:—(a) Stretching; (b) Bending.

Apparatus:—Jolly balance of I, 3; Weights of I, 3; Bending apparatus, with lever indicator, \$3.00, or a Metre stick fastened at one end to a block clamped to the table may be used instead.

2. *Osmosis*.

Apparatus:—Thistle tube, large, \$0.15; Parchment paper, \$0.05; Battery jar, \$0.10; Burette support of I, 2.

Three Problems.

III. MECHANICS OF SOLIDS.

1. *Composition of Forces*:—(a) Concurring; (b) Parallel.

Apparatus:—Three drawscapes, 2,000 gm., reading to 25 gm., with cradles, \$0.40 each; Three cabinet clamps, 3 in., \$0.20 each; Protractor, 4 in. celluloid, \$0.15; Universal support, two, \$1.10 each; Wooden bar, 20 cm. long, graduated to mm., \$0.20; 500-gm. weight, iron, \$0.35.

2. *Accelerated Motion*:—Inclined Plane or Atwood's Machine.

Apparatus:—Duff's Inclined Plane, \$3.90; Hawkes Atwood's Machine, wall pattern, \$35.00; Metre-rod of I, 1.

3. *The Pendulum*:—The law of length and determination of *g*.

Apparatus:—Pendulum, supported on wall brackets, with electrical contacts, complete, \$1.80; Same, mounted on support to be clamped on table, \$6.50.

4. *Curvilinear Motion*:—The laws.

Apparatus:—Iron ball, 2 kgm., for conical pendulum method, \$0.50; Drawscale of III, 1; Metre-rod of I, 1; or one may use instead of foregoing, Whirling machine, with necessary accessories, \$17.50.

5. *The Lever*:—The principle of moments.

Apparatus:—Simple form of lever, \$1.50; or Miller's form, \$1.50.

6. *The Inclined Plane*.

Apparatus:—Plate glass for track, \$1.00; Car, \$0.90; Pulley, \$0.50; Scale-pan, \$0.10; or Complete apparatus, supporting frame, track, car, pulleys and scale-pan, \$5.00.

7. *The Pulley.*

Apparatus:—Brass pulley, two hooks, true, \$0.35 each; Scale-pan of III, 6. Eight Problems.

IV. MECHANICS OF FLUIDS.

1. *Surface Tension:*—(a) General phenomena; (b) Capillary action; (c) Drop size.

Apparatus:—Capillary tubes, \$0.10; Tube gauge, \$0.75; V-shaped scale, graduated to mm., \$0.50; Air thermometer, \$0.25; Hoffman pinch-cock, \$0.20; Glass funnel, 3 in., \$0.15; Balance and weights of I, 3; Universal support of III, 1; Glass beaker, \$0.10.

2. *Pressure in Liquids:*—Downward, upward, at a point.

Apparatus:—Three glass tubes, \$0.75; two aluminum tubes, graduated, closed at one end and loaded so as to float vertically in water, \$0.75; 5-gm. weights, \$0.15 each.

3. *Buoyancy:*—(a) Solids that sink in water; (b) Solids that float in water.

Apparatus:—Balance and weights of I, 3; Brass cylinder, \$0.25; Vernier caliper of I, 1; Graduated aluminum cylinder, 1 cm². cross-sectional area, loaded to float vertically, \$0.50.

4. *Density:*—(a) Solids that sink in water; (b) Solids that float in water; (c) Liquids.

Apparatus:—Balance and weights of I, 3; Density bottle, 25 cm³., \$0.65.

5. *Air Pressure.*

Apparatus:—Barometer tube, \$0.40; Mercury, \$0.85 per lb.

6. *Measuring Heights with Barometer.*

Apparatus:—Aneroid barometer, \$10.00.

7. *Boyle's Law.*

Apparatus:—J-tube, 1 m. long, glass, mounted on stand, \$0.75; or, Improved form, 2 m. long, both arms adjustable, \$6.50; Mercury of IV, 5; or Barometer tube of IV, 5.

Twelve Problems.

V. SOUND.

1. *Velocity of Sound:*—(a) In air by method of resonance; (b) In solids by Kundt's method.

Apparatus:—Tuning fork, C, \$1.00; Glass tube, 50 cm. long, 2.5 cm. diameter, \$1.00; Inside calipers, \$0.20; Complete apparatus, mounted, with listening tube, \$6.50; Kundt apparatus with iron rod, \$3.50.

2. *Scale Ratios.*

Apparatus:—Porter electric motor, No. 2, \$6.00; Siren disk, \$0.50; Taylor battery, two, \$2.00 each.

3. *Frequency:*—By chronograph, siren, or sonometer.

Apparatus:—Chronograph, \$18.00; Motor and Siren disk of V, 2;

Adjustable resistance, \$5.00; Taylor battery of V, 2; Sonometer, \$7.00.

4. *Laws of Strings.*

Apparatus:—Sonometer of V, 3; Four tuning forks giving major chord, \$6.00.

5. *Laws of Beats.*

Apparatus:—Sonometer of V, 3.

6. *Laws of Air Columns:*—By use of a singing flame.

Apparatus:—Universal support of III, 1; Jet tube, \$0.10.

Seven Problems.

VI. LIGHT.

1. *Images by Small Apertures.*

Apparatus:—Wooden screen, \$0.30; Wooden screen, with aperture, \$0.35; Lamp, \$0.40; Cardboard cylinder, \$0.15.

2. *Photometry:*—Comparison of the intensity of two lights.

Apparatus:—Photometer, Miller's, with accessories, \$10.00; Lamp of VI, 1.

3. *Reflection:*—(a) The law; (b) Angle of prism.

Apparatus:—Plane mirror, 3 in. square, \$0.20; Protractor of III, 1; Prism, flint glass, 2.5 cm. by 5 cm., \$0.90.

4. *Focal Length:*—(a) Concave mirror; (b) Convex lens.

Apparatus:—Photometer of VI, 2; Concave mirror, 3 in., \$0.75; Convex lens, 3 in., \$0.75. Smaller and cheaper lenses might be used with good results.

5. *Images:*—(a) Plane mirror; multiple images; (b) Spherical mirrors; (c) Lenses.

Apparatus:—Photometer of VI, 2; Mirrors and lenses of VI, 4; Convex mirror, 3 in., \$0.75; Concave lens, 3 in., \$0.75; Plane mirror, of VI, 3.

6. *Refraction:*—(a) Index of water; (b) Index of glass.

Apparatus:—Refraction tank, \$1.50; Prism of VI, 3; Protractor of III, 1.

7. *Magnifying Power.*

Apparatus:—Two steel scales, reading to $\frac{1}{5}$ mm., \$0.85 each; Universal supports of III, 1; Lens of VI, 4.

8. *Spectra.*

Apparatus:—Prism of VI, 3; Adjustable slit, \$0.50; Bunsen burner, \$0.25.

9. *Mixing Colors.*

Apparatus:—Motor of V, 2; Battery of V, 3; Maxwell's disks, set of nine, with graduated disk, \$2.00

10. *Diffraction:*—Wave length of monochromatic light.

Apparatus:—Adjustable slit of VI, 8; Metre-rod of I, 1; Bunsen burner or alcohol lamp, \$0.25; Grating, copy, \$1.00. Fifteen Problems.

VII. HEAT.

1. *Thermometry*:—Testing fixed points on a thermometer, and constructing a table of corrections.

Apparatus:—Iron stand, 2 rings, \$0.35; Bunsen burner of VI, 10; Steam generator, copper, \$1.00; Universal support of III, 1; Glass funnel, 4 in., \$0.20; Bottle, 1 qt., wide mouth, \$0.10; Thermometer, \$0.75.

2. *Expansion*:—(a) Linear; (b) Cubical of liquids; (c) Air under constant pressure.

Apparatus:—Expansive app. of solids, \$2.00; Micrometer caliper of I, 1; Steam generator of VII, 1; Bunsen burner of VI, 10; Iron stand of VII, 1; Thermometer of VII, 1; Glass funnel, 3 in., of IV, 1; Balance of I, 3; Density bottle of IV, 4; Air expansion App., \$1.25; Steel scale of VI, 7.

3. *Specific heat*:—(a) Solids; (b) Liquids.

Apparatus:—Metal ball, copper, \$0.25; Nickel-plated beaker, 1/4 l., \$0.75; Thermometer of VII, 1; Iron stand of VII, 1; Bunsen burner of VI, 10; Copper beaker, 1 l., \$1.00; Balance, 1 kgm. with weights, duty free, \$15.50.

4. *Melting points of Solids*.

Apparatus:—Test tube, wide mouth, \$0.10; Thermometer of VII, 1; Beaker, glass, \$0.10; Iron stand of VII, 1; Bunsen burner of VI, 10; Glass tubing, \$0.10.

5. *Boiling point of Liquids*:—Effect of pressure.

Apparatus:—Test tube of VII, 5, provided with stopper; Thermometer of VII, 1; Beaker of VII, 3; Iron stand of VII, 1; Bunsen burner of VI, 10; Barometer of IV, 6.

6. *Heat of Fusion of Ice*.

Apparatus:—Iron stand of VII, 1; Beaker of VII, 3; Nickel-plated beaker, 1/2 l., \$0.80; Bunsen burner of VI, 10; Thermometer of VII, 1; Balance and weights of VII, 3.

7. *Heat of Vaporization of Water*.

Apparatus:—Iron stand and thermometer of VII, 1; Bunsen burner of VI, 10; Balance and weights of VII, 3; Beakers of VII, 3; Steam generator of VII, 1; Water trap with delivery tube, \$0.50; Pinchcock of IV, 1.

8. *Heat lost in Solution*.

Apparatus:—Glass beaker of VII, 4; Thermometer of VII, 1.

9. *The Dew Point*.

Apparatus:—Beaker of VII, 3; Thermometer of VII, 1.

Twelve Problems.

VIII. MAGNETISM.

1. *The Bar Magnet*:—(a) Law of magnetic action; (b) Locating the poles; (c) Lifting power.

Apparatus:—Magnetoscope, \$1.00; Bar magnet, 4 in., \$0.15; Pocket compass, agate bearing, \$0.75; Carpet tacks, \$0.05.

2. *Diamagnetism.*

Apparatus:—Magnetoscope of VIII, 1; Bar magnet, 6 in., \$0.30; Sheet of zinc, 3 in. square, \$0.05; Two sheets of iron, 3 in. square, one much thicker than the other, \$0.15.

3. *Surface Distribution of Magnetism in a Slender Magnet.*

Apparatus:—Magnetoscope of VIII, 1; Magnet, slender, 8 in., \$0.25.

4. *Magnetic Fields.*

Apparatus:—Two bar magnets, 4 in., \$0.15 each; Horseshoe magnet, \$0.25; Iron filings, \$0.10 per lb.; Compass needle, 1/2 in., \$0.15.

Six Problems.

IX. ELECTRICITY.

1. *The Electroscope.*

Apparatus:—Electroscope, \$1.00 to \$4.50; Proof plane, \$0.25; Flint glass rod with silk rubber, \$0.40; Bar of sealing wax with flannel, \$0.30.

2. *The Voltaic Cell*:—A study of its action.

Apparatus:—Voltaic cell, with plates of copper, amalgamated and unamalgamated plate of zinc, \$1.00.

3. *Magnetic Qualities of Current.*

Apparatus:—Daniell battery, 1/2 gal., \$1.00; Galvanometer block, fitted with binding posts, \$0.75; Compass of VIII, 1; Contact key, \$1.00; Iron filings of VIII, 4.

4. *Constructing an E. M. F. series.*

Apparatus:—Voltaic cell of IX, 2; Extra plates for cell, \$0.10 each; Contact key of IX, 3; Compass galvanometer of IX, 3.

5. *Mutual Action of Electric Currents.*

Apparatus:—Ampere apparatus, \$2.00; Daniell battery of IX, 3; Contact key of IX, 3; Wire for connection, \$0.10; Iron filings of VIII, 4; Compass of VIII, 4.

6. *Measurement of Electrical Resistance of a Wire*:—Effect of length, diameter, material, and temperature of conductor.

Apparatus:—Wheatstone Bridge, \$4.00; d'Arsonval galvanometer, \$6.50 to \$20.00; spools of wire, \$0.40 each; Resistance box, \$4.00; Daniell battery and contact key of IX, 3.

7. *Measurement of Battery Resistance*.—Single, parallel, series.

Apparatus:—Same as IX, 6 with an extra Daniell cell.

8. *Measurement of E. M. F. of Battery*.—Single, parallel, series.

Apparatus:—Daniell cell and contact key of IX, 3; Two Leclanche cells, \$0.60 each; 5,000 ohm coil, \$1.50; d'Arsonval galvanometer of IX, 6; Commutator, \$0.75.

9. *Fall of Potential along a Conductor.*

Apparatus:—Wheatstone bridge of IX, 6; Taylor batteries of V, 2; d'Arsonval galvanometer of IX, 6; 5,000 ohm coil of IX, 8.

10. *Reduction Factor of a Galvanometer.*

Apparatus:—Daniell battery of IX, 3; Commutator of IX, 8; Resistance coils of IX, 6; Contact key of IX, 3; Tangent galvanometer, \$4.00; Wheatstone bridge of IX, 6; d'Arsonval galvanometer of IX, 6; Copper voltmeter, \$5.00; Balance and weights of I, 4.

11. *Current Induction.*

Apparatus:—Two helices, \$5.00; d'Arsonval galvanometer of IX, 6; Bar magnet of VII, 2; Daniell cell of IX, 3; Contact key of IX, 3.

12. *The Dynamo:*—Developing the principle governing the E. M. F.

Apparatus:—Large horseshoe magnet, \$2.00; Soft iron bar for armature, \$0.10; Hard steel bar of same size for armature, \$0.10; Wooden bar of same size as steel bar, \$0.05; d'Arsonval galvanometer of IX, 6; Insulated copper wire No. 24, \$0.20. Twelve Problems.

 PHYSIOLOGY IN THE GRADES.

 SUPERINTENDENT C. W. MICKENS, ADRIAN.

For a school superintendent to undertake to discuss this topic from a scientific standpoint would be presumptuous. The most that can be expected is a very general view of the subject. Any treatment of "Human Physiology in the Grades" promises little more than a restatement of old ideas and well worn arguments. There seems to be many ways in which the topic might be handled, each more or less interesting and profitable. For a meeting of this kind, however, I have thought that it might be well to touch upon various phases of the topic and by so doing stimulate thought among the many lines of school interests here represented.

Studies are sometimes classified into instrumental, informational or disciplinary. Reading, and some of the so-called essential studies are, in their beginning, largely instrumental. Geography and physiology are subjects that might fall into the informational class. Physiology, either as an informational or instrumental subject would appear to be of very little value, except as it is viewed in its relation to other subjects. To know the names of the bones of the body or the nomenclature of the muscles which control bodily activity cannot count for very much except as a mere matter of information. It may afford some pleasure and a little inspiration to a child to recite glibly the names of the two hundred bones of the skeleton or classify and name the teeth correctly. But this information, in itself seems to be of little value.

Physiology also presents many difficulties when studied for informational purposes. One must be content to accept very largely the statements of a book rather than learn by investigation. One's knowledge

at best of this subject must necessarily come at second hand. First hand knowledge of the human body and its intricate mechanism can be known only in the dissecting room which is an impossibility in a graded school. Because of this fact its assignment to a very prominent place in the curriculum will always be questioned. It will never hold equal rank with botany or the physical aspect of geography for either of these studies can be made more concrete, hence the knowledge gained more definite and satisfactory. While there might be some question about the place and value of physiology in our course of study from an informational point of view, there are, still, reasons for its retention in the curriculum. To study physiology for information alone is a very different matter from what it is to study it with the higher end of understanding the use, the care, and the significance of each organ of the body as is done when hygiene and right laws of living are considered. Even then it is a very common thing to teach about the care of the eyes, the care of the teeth, the laws of exercise, etc., without securing results that are worthy of the name. Rules for the care of the eyes should result in actual care of the same. To insure this a teacher should give some simple test for the eyes and if found defective, recommendations of the child's need should be made known to the parents or other proper authority and thus timely assistance be rendered the children. It is needless to teach pupils to avoid cross lights and then have buildings constructed with windows so placed as to violate every principle of proper lighting. It is useless to preach the doctrine of pure air and then provide no plan for it in the school room or attempting to outline a simple method for home ventilation.

It is barely possible to teach the necessity of cleanliness in school for four years and still have pupils come to school with untidy hands, soiled clothes and olfactory evidence that a bath tub is to them a luxury indulged in at very long intervals of time. A practical method of teaching such facts would consist of a formal introduction to the lavatory or a more intimate acquaintance with the school shower bath, both of which should be found in every well regulated school. Children have been known to recite very intelligently the various names and classifications of the teeth and still come to school with anything but properly kept teeth. The point to be made is that teaching must be so effective that results shall be definite and evident or else the energy and the time spent are absolutely without purpose.

But physiology has a place in the grades as a basis upon which both the teacher and the pupil may lay the foundations of strong physical natures. Calisthenics, physical culture and gymnasium work must rest ultimately upon a knowledge of physiology, anatomy and hygiene. When teaching is such that one can actually see that lung capacity is enlarged, that spinal curvature is corrected, that the biceps and triceps

are strengthened and enlarged, that the skin becomes healthy and that the blood flows more freely because of certain kinds of physical training, then it is that the work counts for something. So when the topic of "Exercise" in physiology is under discussion, then is the time to make teaching good by actual demonstration. Let in the pure air, feel the invigoration arising from strong arm and chest movements, start the circulation and thus prove the efficacy of physical culture. How closely the technique of physical culture is related to its fundamental science is not a matter of consideration here, but certain it is that relations must be established between theory and practice, knowledge and power, before the best results are secured. The whole subject of physical education hinges upon this phase of our subject for a knowledge of physiology must underlie any rational scheme of physical development. With our children amenable to a peculiar American form of nervousness which is beginning to alarm the educational world because of its rapid spread and persistent attacks upon growing childhood, a burden of responsibility rests heavily upon the teachers when they realize that the only immunity from the dreadful inroads of the disease rests upon proper nutrition, seating, ventilating, lighting, exercise, recreation and work, combined with right mental and emotional states, all of which are conditioned by the physical nature, it becomes apparent how important a right knowledge and a true application of physiology becomes when child development and health are prime matters of consideration. It has been thought by some that the nervous system is the great field of education, and if so, education whether mental or physical, to be natural, safe and efficient, should be so conceived and ordered as to conform to the laws which determine the growth and development of the nervous system, a knowledge of which rests upon a careful study of physiology.

The study of physiology is often urged as a means of understanding the effects of alcohol and narcotics upon the human system. Our text books presuppose this notion. They are constructed with illustrations and with text to enforce the Scientific Temperance instruction idea. Laws exist to compel the teaching of physiology and the evils of certain narcotics. Without doubt good has been accomplished by the teaching of Scientific Temperance. It is not my purpose to argue against the merits of Scientific Instruction in our schools nor to precipitate a discussion by announcing the Atwater doctrine stated a few years ago. On the contrary I believe in a sane, sensible, reasonable correlation of physiology and temperance instruction. I am not in sympathy with some of the exaggerated deductions that have been made through the wrong interpretation put upon the statements of the books. Neither do I believe in the prejudices that some teachers show because they do not hold the same views of personal rights and privileges as some other people do. There is such a discrepancy between the text-book teachings

and the apparent ocular proof of these evils taught about in every day life that it is very hard to make pupils realize the terrible effects of narcotics upon growing and developing life. "Every one seems to smoke," the boy says, "then why should not I?" "Intoxicants are in general use, then why does our teacher so strenuously oppose them?" To make children understand the truth about seeming contradictions requires the highest wisdom on the part of teachers. It cannot be done by undue emphasis, by prejudiced tirades, or by exaggerated statements. The whole matter of scientific temperance must be viewed calmly and taught wisely. If by systematic or incidental means pupils can be shown that cigarette users are improperly developed, intellectually, physically and morally, and are at a disadvantage in all walks of life, some good has been done. But on the contrary if attempts are made to impose a code of temperance rules and regulations upon the child before he is convinced of their efficacy and before the age of moral responsibility is reached they will result in failure. Teaching to be effective and practical must also be rational. To what an extent Scientific Temperance instruction should be carried in our schools, and how to measure the good that is being done by such teaching are still open questions. Nevertheless any laudable scheme that will in any degree mitigate the evils of alcohol and tobacco, ought to receive encouragement in our public schools.

From the teacher's point of view a knowledge of physiology is absolutely essential when considered in its relation to modern psychology. It is quite generally agreed that every mental state or change must have a corresponding physical one and that all mental processes are concomitant with physiological processes. The functions of body and mind are so dependent upon each other that to know the workings of the one is to understand the functions of the other. There is no separation of the two. Since every motor stimulus finds its appropriate function in the nervous organism how very important it is that a teacher thoroughly understand the existing relations. Such a knowledge forms the basis of the modern physiological psychology resting as it were upon a physical foundation.

Around this physiological interpretation of psychic laws has grown up new doctrines of child life and new theories of education. Our whole curriculum of study has undergone a revision to harmonize with the newer views of physiological psychology. Motor activity has been accorded a much larger place in the retaining of the young. A knowledge of the natural development of the muscles has determined the games, the work and the methods of the Kindergarten. Large writing and bold characters written upon the blackboard, coarse material for hand work, games, occupations, manual training, domestic science and other forms of motor activity are all based upon the close relations that exist between motor and mental concomitance. It is evident that this newer theory

demands a thorough knowledge of the human organism together with a careful insight into the intimate relations that exist between mind and body. Every progressive wide awake teacher must study psychology with a clear understanding of its dependence upon physiology.

Possibly the reasons stated above are sufficient to indicate why physiology might, as well, be admitted to our school curriculum for the grades. Objection might be raised to its systematic treatment owing to lack of time. Possibly the multitude of subjects might argue against its independent teaching. If so, one should be convinced easily that this subject can be correlated with other branches or topics. Much of physiology lends itself to science study. In the earlier grades a teacher can weave it in with the work on manners, habits, hygienic rules of living, exercise, games, and occupations. A more scientific treatment can be made in the higher grades in connection with domestic science, when food values, kinds of food, dietetic rules and sanitary regulations are considered. Very important phases of the subject such as "What to do till the doctor comes" and instruction concerning contagious diseases can best be taught when demanded by the exigency of the moment. These are among the most important phases of physiology and the ones least emphasized. They, however, can be taught without detracting very much from the regular instruction in other studies. Moreover, those parts pertaining to exercise can be relegated to the physical culture hour or to the teacher of this subject. So in reality the lack of time is no bar to the teaching of physiology and related subjects.

We should not be living up to our profession should we omit a single word concerning method in physiology. Undoubtedly the oral instruction in the first four years, coming like living truth from the lips of the teacher is the best method of teaching physiology. It is during this time that the little tendencies of proper habits of life can be inaugurated.

Even the dress of the teacher, the bright ribbon she wears, the care of the hands, the teeth and the hair all leave an everlasting impression upon children of tender age. Example will teach more than precept now. When the book is used some informational work is necessary, but those maxims of health, of exercise, of care of body, of care of the eyes, and ears, can be taught and put into daily practice.

Then follows the more scientific treatment of the subject enlarged by experiment and a judicious use of illustrative material secured from the neighboring meat shop. In experimental work great care is needed lest the experiment overshadow the end to be secured. In the later stages those things which assist us to understand our ethical relations, such as: First aid to the injured, sanitation, food values, treatment of contagious diseases, hints for the sick room and related topics should be carefully taught. Thus the social relations are strengthened. Some-

thing can be done along the lines of teaching about pure food laws, adulterated foods, regulation of intoxicants, license and local option and such knowledge as will bring out the civic side of life.

It is not impossible to teach something about the chemistry of foods, the chemical and physical properties of our bodies thus introducing pupils to the beginning of science. In various ways "Human Physiology in the Grades" may be made a live, an interesting, a profitable and a pleasant study.

BIOLOGICAL CONFERENCE AND SCIENCE TEACHING— HUMAN PHYSIOLOGY IN THE HIGH SCHOOL.

MISS GRACE FRANCES ELLIS, CENTRAL HIGH SCHOOL, GRAND RAPIDS,
MICHIGAN.

Several years ago it seemed necessary and wise, in our school, to establish in the 12-2 grade, a class in physiology, where those students who were preparing for teaching in country schools, or for entrance to Normals, could have such preparation as they needed. To this group was added that small number of pupils,—who by reason of themselves being older and more thoughtful, or by advice from parents or friends, thought it wiser not to leave school where they had gained some acquaintance with almost everything else, without some knowledge of themselves. A wisdom in which they are wiser than many makers of curricula, or architects of "courses." With such a class of students and for their needs so far as they could be ascertained, I have worked in several successive classes. I should be unfair to those who have been my students if I did not say that with them I have spent some of my pleasantest and most profitable hours. We have studied together, though not always for the same ends, and my learning has brought me new and helpful ideals. Admission to this class does not depend altogether on position in grade. Students, other than seniors, have entered it, when it has seemed best to let them; though this is not the general rule.

Martin's Human Body has been our text book, with Peabody's and several other texts for reference. Almost equally with Martin we have used State Board of Health Reports, publications of the United States Department of Agriculture ;occasional magazines and other periodicals; and even statistics collected from jails, asylums and other institutions.

Students who elect this subject are sometimes prepared for it, but more often are not. They will almost without exception have had a semester of physics, but often have had no chemistry;—occasionally only, they have had Botany or Zoology. When the course was first

given we started in on bones, according to the order in Martin; we do so no longer. I do not even now know why bones are of so much less interest at this stage of the game; but I know they are and I am willing to abide by my experience. So far as I have been able to learn, fresh bones are "mussy," and dry ones "dirty and rattley," but I no longer mention them to my beginners.

In the class room we begin the work with some simple experiment, such as the burning of a match, and from this work out the ideas of chemical change, elements, compounds, and the like. This is usually followed by a study of air with preparation of oxygen and nitrogen before the class; and after this we study the chemical composition of the human body.

Peabody's *Studies in Physiology* gives an excellent introduction to the subject for pupils who have had no chemistry. By this time the class is ready for some introductory laboratory work, and we begin with a set of experiments on acids and alkalies, perhaps the simplicity of these should be emphasized; students are told to test them with litmus; to taste them in dilute solution; to neutralize the two separate and finally to give definitions drawn from these experiments of an acid; an alkali; a neutral substance, and a salt. At the close of the period each pupil is given some pieces of litmus paper to take home; is asked to test as many substances as possible, and to record the results obtained under proper headings. At the out set it is important to emphasize the fact that physiological processes can never be understool unless the pupil is given some idea of the simpler principles of chemistry. He must be familiar with carbon, hydrogen, oxygen and nitrogen; he must know how to test for carbon dioxide, for acids and alkalies; he must learn something of the common processes of oxidation, neutralization and evaporation. For unless these lessons are taught early in the course, and taught by experiment, the foundation will be weak when the more difficult processes involved in digestion, respiration, and excretion, are reached. If a pupil once gets clearly in his mind the nature of elements, compounds, and the process of oxidation, an immense amount of subsequent labor and disappointment will be saved. Class work in the text is commenced with Chaps. VIII and IX, "Why We Eat and Breathe," and "Nutrition," from Martin.

In the study of foods the student first tests for the five or six nutrients found most commonly in foods. For the starch tests we give each student a small bottle of iodine solution, and let him conduct his tests at home. When he has followed the simple directions given him, and has tested ten to twenty foods, he is ready to report in the class room. He knows whether starch is most likely to be found in foods of vegetable or animal origin. Food adulteration has commonly come up for consideration in the class from the conflicting results furnished by the

testing of spices. The sugar test,—by Fehlings' solution can easily be done at home, if pupils are furnished by test tubes, and a small supply of the solution. The presence or absence of fats, proteids, minerals, and water may be determined at home, or in the laboratory, by the individual pupil, and results compared in the class room. Such a course leaves the pupil with a concrete idea of the important compounds he will meet with over and over again, in the ingredients of his food; as components of the blood; or constituents of tissues in the body.

It is, of course, impossible to demonstrate by experiment the uses of these various nutrients, and so with laboratory or home work there must be a liberal amount of class room instruction. Very often a pupil does not see,—without vigorous and exhaustive questioning, what are the essential points in each experiment, and the relation of the various facts which have been accumulated.

So much accustomed are we as teachers to the combining of these various results that we forget that the end, plainly in view to us, is hidden from the pupil, and relationships are more or less vague and misty to his mind.

The uses of foods, proper methods of cooking, food economy, and the relation of diet to health, are, to my mind, the most important topics included under human physiology. Most high school text-books give a rather inadequate treatment of the subject, but the publications of the United States Department of Agriculture are to be obtained even in the large quantities necessary for individual study; the best bulletins for high school use are "Principles of Nutrition, and Nutritive Value of Foods," "Meats, Composition and Cooking," and those on Milk, Bread-making, Fish and Eggs.

The colored food charts which are so useful in class recitations, are unfortunately out of print, but the same charts and tables are given in the bulletins mentioned. While the study of the digestive organs is taken up in class, the laboratory work is an experimental digestion of starches and proteids, in an "artificial stomach," formed of a zinc pan, with large meshed wire gauze over it, and filled with water kept at a constant temperature of $98\frac{1}{2}$ degrees F. Into the meshes of the gauze can be slipped the test tubes holding the foods and the various digestive ferments, and at the end of three or four hours of heating the apparatus is set away to be tested for the results of digestion on the following day. The process is essentially that outlined in Peabody's Laboratory Manuel.

To avoid the tendency of science teaching to take the short cuts from facts to generalization, the negative results as well as the positive need consideration; and while experiments are made in digestion of proteids with pepsin and acid together, it is well to test whether either pepsin or acid alone would produce the same effect, and whether pepsin will

digest other foods than proteids; or whether starch digests equally well at all temperatures.

For the study of cell structures and functions several days may be profitably spent on the paramoecium or amoeba, and the most important functions of the animal may be considered in the following order:

(1), locomotion; (2), taking in of food; (3), digestion; (4), circulation; (5), assimilation; (6), taking in of oxygen; (7), oxidation or metabolism; (8), excretion; (9), sensation; (10), reproduction.

It is thought this will help in fixing the idea that physiology deals with units in action, each influencing the other. The circulation of the blood, for example, is not a fixed state, to be memorized, but is, at any given moment, an equilibrium resulting from the interaction of many shifting factors. Such factors must be severally known and the result of their interaction reasoned out. If the factors have not been acquired largely by personal observation. The mind will not grasp them with sufficient clearness to make possible their subsequent combination. For the most part physiology cannot be memorized but must be understood.

This part of the work often brings questions about bacteria and it is an easy way of introducing a little elementary bacteriology. A few test tubes, if one has no Petri dishes, and any good nutrient medium, and it is easy to demonstrate the bacteria of dust, water, air, ice, milk, etc. This of course enters upon the field of diseases caused by bacteria, and the laboratory work is followed by a set of questions for which references are given, and which are finally talked over in class. These are rather wide in their range, including use of feather dusters; susceptibility and immunity in disease; antitoxine; vaccination; flies and typhoid; mosquitoes and malaria; and special emphasis is placed upon tuberculosis, its prevention, and cure. Last spring this came at the time of the Anti-tuberculosis Society's exhibition in our city and we spent one class period in a very profitable study of that exhibit.

The remainder of the work follows more nearly the beaten track so far as the study of circulation, respiration, and excretion are concerned. As we study the lungs we make records of the vital statistics of each pupil, finding age, height, weight, chest measurements in inspiration and expiration, lung capacity with a simple form of spirometer, relation of chest average to height, and of height and weight. Students take pride in a good lung record and often taken pains to increase it, taking occasional measurements during the semester.

Before we begin the study of the nervous system this semester, the class will be given an illustration of reflex action in a brainless frog. We shall also see the nervous system and get some notion of nerves and ganglia and their functions. A dissected model is a great help in teaching the structure and functions of the brain.

It is quite possible that muscles and bones will form the last subjects

we may touch upon. A very few laboratory periods spent on these subjects when the pupils are really desirous of knowing, and have got over their fussy notions, will settle their structure. As to muscular action, —why should it be learned from a book when as Huxley said long ago, "There is a very convenient and handy animal which everybody has at hand, and that is himself." A little experimental study of his biceps will tell a boy more than any book, and for that matter he has probably learned it without any book;—and has only,—to quote Huxley again, to realize that "Science is only trained and organized common-sense." The Harvard joint apparatus will interest him in a calculation of how much force he expends in his various motions.

Bones are more interesting to boys and girls if studied from the standpoint of comparative anatomy, and the study of the human body offers a fine chance to develop this side of the subject. If you can send them to a museum with a set of questions applicable to the bones of any vertebrate, you are likely to be furnished with subject matter for some time. It is usually possible to have a collection of skulls in the school, and teeth are vastly more interesting if compared in man, and in horse, cow, dog, and rat or squirrel.

I have left the subject of the teaching of alcohol and narcotics until the last, partly because I hesitate to take it up,—my students come to me with a distaste for the whole subject of physiology, which I often find is acquired as the result of a grammar school experience of the subject, dealing with it only from the standpoint of temperance teaching. Perhaps the most successful way in which we have ever dealt with this included the collection of a large set of statistics from the police courts of our city showing the total number of arrests, the proportion of those arrested for drunkenness and disorderly conduct, the whole cost of our police department; and the part of this expense due to drunkenness. In the same way we calculated the cost of caring for paupers, criminals, and insane due to drink; and finally the amount it cost each citizen because of this. It happened that the class was composed of pupils who had studied domestic science and shop work in the grades, but could not continue their study in the high school, because of lack of funds to establish and maintain a manual training addition. They made a few very startling applications of their own as to possible disposals of such a sum of money.

Everywhere and always, throughout the semester of physiology in laboratory and class room we try to demonstrate the connection of right living and health; the need of knowing what right living is, and under what conditions it is attained, and the danger of ignorance, not only to the individual, but to the family and the community. People who treat their bodies as they please, and transgress rules of personal hygiene of which they should have a definite understanding, are physical sinners,

and unfortunately the results of the crime do not always visit them alone.

Public hygiene may be enforced, but personal and domestic hygiene must be taught. No law can compel citizens intine of epidemic of typhoid to boil their drinking water, and cleanse food to be eaten without cooking, but persistent teaching will do much toward it. A grade teacher of my acquaintance found not long ago, as the result of an accidental question that only one child in her entire roomful, ever had an open window in his bedroom at night.

General sanitary improvement is dependent upon the intelligence of the community, as well as upon efficient health officers, and one of the important duties of the physiology teacher, is to disseminate more widely knowledge concerning public, domestic, and personal hygiene.

Personal hygiene is applied physiology, and knowledge of the normal functions of the body and the simple methods of keeping them in healthy action, is the one thing no educated person should be excused from possessing. Yet most children reach maturity without sufficient parental or scholastic instruction in many essential matters of health. Men and women who would be greatly chagrined to be corrected in the pronounciation of a popular foreign proper name, or who would resent any suggestion as to their lack of general culture or learning show not the slightest embarrassment at their ignorance of the common physiologic functions.

Said an exasperated physicion on this point, "Not to know what each one owns would, in commercial life, be considered as either idiotic, or criminal negligence; and yet not one in ten can tell on which side of the body the liver is placed, while the vast majority complacently clasp their hands over some thirty feet of intestine when asked to locate the stomach, and of its structure, use, and care, they know even less."

Persons of intelligence continually furnish thoughtless recommendations of purely "quack" remedies, and unscientific instruments and apparatus, and allow their names and pictures to appear in periodicals,—like those "eminent" clergymen who recommend "Peruna" with its 28.5 per cent. by volume of alchohol; and its kindred spirts. A list of the common patent medicines with their percentages of alchohol is a good thing to put up for a class to read, and a discussion of their ingredients and the effects of them on the human body is a good thing for the pupils and indirectly for the parents.

We approach the subject of physiology by two paths: the direct, which I have outlined above; and the indirect in connection with the year's work in zoology. This has its advantage in the fact that pupils are often wearied of the subject of physiology in the elementary schools, and this gives an entirely new approach. There is also an advantage in that erroneous impressions gained from the elementary work are more

likely to be corrected when the facts of human structure and function are approached from the animal standpoint, instead of from the familiar human aspect of elementary school physiology. The study of animals and plants gives the proper perspective for the biological study of man, making this vastly more interesting and intelligible. In this connection of course the comparative view prevails, emphasis is placed upon resemblances in structure and function between man and animals, resemblances to all living things; similarities to all vertebrates; resemblances and differences of man and other mammals.

Incidental references to human structure come up in connection with many lessons, but the formal comparative study is best taken up at the end of the course in zoology, which will then have prepared for an intelligent appreciation of human physiology. This course is handicapped with us because zoology precedes instead of follows chemistry whereas the reverse should be true. So long as any science which deals with living matter precedes chemistry it must be hampered; for the study of life constitutes the chemistry and physics of living matter. The following arrangement of subjects was suggested to me and may not meet with general approval,—since it is useless to hope that for any scheme, it has the merit of giving opportunity for proper preparation before the life sciences are commenced.

1. Elementary Chemistry and Physics.
 2. Elementary Physical Geography and Astronomy.
 3. Botany and Zoology.
 4. Advance Chemistry and Physics.
 5. Physiology.
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HUMAN PHYSIOLOGY IN THE HIGH SCHOOLS.

PROF. S. D. MAGERS, NORMAL COLLEGE.

When we contemplate the fact that the State of Michigan has 4,006 registered practicing physicians, Detroit 764, Grand Rapids 228, Saginaw 86, Battle Creek 87, Bay City 73, Kalamazoo 72, giving about one physician for every 600 of the population of the state and one for about every 350 of the cities named, that the U. S. last year spent over \$100,000,000 for patent medicines, that 50 per cent of the applicants for admission to West Point are rejected on account of physical unfitness, it would seem that the human organism is a machine poorly constructed for the environment in which it finds itself or that its possessor is grossly ignorant of the nature of the units that make up its composition and the means of making a suitable environment for these units.

The fact is, the machine is often weak and delicate, due largely to the ignorance or vise of past generations, yet whatever be its initial condition there is no one thing that should be of so much concern to each individual as the keeping of his physical condition strong and vigorous.

Most of the failures in school life may be traceable to physical defects, especially of the eye and ear. Many of the failures in business life and the peace and happiness of the home are caused by unhappy dispositions, due to indigestion. Nearly all the nervous breakdowns are chargeable to neglect of the proper kind and amount of recreation.

Since a sound body to support a strong mind so largely determines ones success in life, too much emphasis can not be placed on physical training, personal hygiene, the hygiene of contagious disease and study of the normal function of the body, physiology. Human physiology is concerned with the normal functions of the cells and their power to do work when organized. It is the study of the chemistry and physics of living matter, and without some knowledge of these subjects it is a waste of time to give any serious study to physiology. I am ready to say that there should be no attempt to teach the subject below the eighth grade and that in the seventh and early part of the eighth personal hygiene, physical training should occupy them some of the time now given to physiology, that elementary physics and chemistry should be taught in the grades by means of experiments. Many of the properties of oxygen, nitrogen, carbon, sulphur and phosphorous may be presented even earlier. When this is done better work in physiology may be accomplished in the eighth grade than is now done in the high school. Yet in the uniform course for high schools prepared by the Committee of Seven, physiology is placed in the tenth grade. The schools are the exceptions which place it later in the course than the tenth grade .

With this arrangement pupils are wholly unprepared for successful study of the subject. The work is wholly superficial. These answers are some of the results: Why do we breathe? To supply the lungs with air. How do we breathe? By the expansion of the lungs. What is the use of the veins? To carry impure blood. What is the function of the bone cells? To support the body.

These results do not reflect any discredit upon the teachers, nor upon the pupils themselves, but simply show that the pupils have not had the preliminary training to fit them to take up the subject. No wonder a superintendent when selecting a science teacher said, "You will to teach botany, chemistry, zoology and physiology, if physiology can be called a science." It was in the tenth grade. Nor should we wonder that it is not accepted for college entrance.

With elementary chemistry, elementary physics and elementary

physiology in the seventh and eighth grades, physiography, botany and zoology in the ninth and tenth, advanced chemistry in the eleventh, advanced physics in the twelfth, with advanced physiology including the hygiene of infectious diseases in the last half of the twelfth, we have a most helpful sequence of subjects.

When this order is followed, with the work he has had in chemistry the pupil readily sees that the nutrient value of food depends upon its chemical composition. That only the part of a carbohydrate food that is available for producing energy, is the carbon, that hydrogen though producing much heat when oxydized is neutralized by the oxygen within the carbohydrate molecule. That the great heat producing power of fat is due to the small amount of O within the molecules as compared with the C and H. That proteid is not a good heat producer because of the large amount of N and O and but a small amount of P and S within the molecule. He has learned the ozydizing power of these elements and draws his own conclusions in regard to their heat value. In short he recognizes that the calorific value of a food depends upon its chemical composition.

Perhaps no better method of illustrating the nature of cell growth and functions is available than that of growing yeast in chemically pure pasteur solutions.

To demonstrate the elements needed in building up its protoplasm, make up the standard solution, then one leaving out the sugar, one without the ammonium tartrate, one omitting the potassium phosphate, one without the calsium phosphate, one without the magnesium sulphate. Inoculate all with the same kind and quantity of yeast cells. Observe the rate of growth by the number of bubbles of CO_2 given off and the increase in quantity of cells produced, or by use of fermentation tubes. We observe without the sugar the growth is slow, all of the elements of sugar being found in the ammonium tastrate, without the latter no growth, taking out the N. The same is true for the omission of Ca, K, mg. and phosphate, but if sulphur be omitted the growth is slow.

By having the yeast in standard solution, collecting the alcohol, the pupil may be lead to see how a gland receives the raw material, the lymph, and by its metabolism produces its secretion.

To show how the different glands, supplied with same nutrient material the lymph, may by their metabolism produce the different secretion, i.e., how gastric secretions, how parotid secretion differ from that of the submaxillary glands, put the same kind of nutrient solution in several test tubes and inocutate with different species of bacteria and observe the different pigments, as to amount and colors, or perhaps grow several series of typhoid fever and coli communis bacilli which most forcibly demonstrate how they may grow on the same kind of medium and produce striking different results.

Again to show that the products of cell metabolism, if not removed, interfere with the normal work of the cells, grow yeast cultures in standard solution, observe that after a given time growth becomes less and less and finally ceases, notwithstanding new nutrient solution has been added from time to time.

With these experiments to furnish apperceptive ideas, the pupil is ready to understand that the specialized function of epithelial cells is to give a secretion which secretion in some cases concentrates into a cell wall which serves for the purpose of protection of the deeper tissues and in others, the glands, it serves metabolic functions, while in still other cases it is directly eliminated from the body being detrimental to the cells that produced the secretion.

He will also understand how the work done by the supporting tissues for the body, the communities of cells, is not done by the living cells of these tissues but that it is done by the product of these cells, their secretions. The pupil will see that the matrix of bone and the matrix of cartilage are secretions, that the fibers of connective tissues are the results of secretions. That in all supporting tissues, the work done for the body, the organism is done by the lifeless part of the cells.

He will understand that in the metabolic action of muscle cells a highly unstable compound is formed which when the proper stimulus is applied, there results a rearrangement of the atoms of the molecules, forming new compounds, some of which are detrimental to the cells and must be eliminated, but at the same time, by the peculiar structure of the muscle cells, changes occur that result in the shortening of the muscle cells; also how the red blood cells have been able to take from the nutrients with which they are supplied, materials which they build into their structure, the haemoglobin, the part of the cell that does the work which the whole cell contributes to the community of cells. Then by placing some blood under the receiver of an air-pump he will be able to see by means of the bubble given off and the change in color of the blood that oxyhaemoglobin can exist as such only when the oxygen pressure is above the critical point.

By the study of the living white blood cell under the microscope he can understand how it by its amoeboid movement it works its way among the cells of the body, even passing through the walls of the capillaries. Then after observing it engulf particles of sediment of india ink he is ready to see how this cell leading an independent life, able to go where it will, digesting and destroying foreign matter, even disease germs, is the scavenger among the tissues.

The experiments with the yeast will aid the student in seeing that the cells of the body lead an aquatic life. That their health and vigor depend upon the environment in which they are placed. That if the movements of respiration and the circulation of the blood are interfered

with, the food supply of the cells is interfered with, also the supply of oxygen, the means of changing the potential energy of the food into kinetic energy. That the vigor of the cells may be impaired by the lack of the removal of their own products. That in most cases bacteria produce disease by the cleavage products which they produce or by their secretions being thrown into the circulation, poisoning the environment of the cells. That the more vigorous the movements of circulation the more vigorous the life of the cells.

When we consider the processes of digestion, we find ourselves dealing with the various ferments and the chemical action of these ferments upon the food material. With the subject of respiration we are confronted almost wholly with problems of physics and chemistry, while the pulse, blood pressure circulation, the action of the refractive media in focussing the rays of light on the retina, the transmissions of sound waves to the inner ear are all problems in physics. In fact we cannot go below the mere surface of any physiological study without finding ourselves involved in problems of physics and chemistry. Why then should physiology take illogical position given it in so many schools?

It has not been my purpose to outline a course in physiology but rather to show

First, that when the normal functions of the cells which compose the tissues and organs are understood one is better able to maintain normal conditions, and to apply rational methods in correcting abnormal conditions.

Second, a mode of attack by which a rational understanding of physiological functions may be easily obtained by those prepared for physiological study.

Third, that physics and chemistry should precede physiology in the course of study.

Fourth, that it should be placed in the last half of the twelfth grade because we are dealing with the physico of chemistry of living matter and these subjects should pave the way for it.

A second reason for placing physiology in the twelfth grade is that more than 80 per cent of the rural teachers, and nearly 50 per cent of the ninth grade teachers have not had training beyond the high school and that the law requires them to teach physiology.

HIGH SCHOOL PHYSIOLOGY.

DISCUSSION.

1. Professor W. E. Praeger, Kalamazoo College:

"Physiology in the grades—don't!" It is an absurdity to attempt to each physiology properly in the grades. "Rules of Health" rather than "Physiology" would be a better name for the subject matter now taught and for that which it is best to teach. The leading physicians having disagreed as to the effects of alcohol on the system. Alcoholism as a study for the schools should be not a physiological, but a sociological problem.

In the high school, physiology must be preceded by chemistry and physics, better also by botany and zoölogy and should be placed in the last year.

2. Suptintendent Alvin W. Cody, Flint:

In Flint the teaching of physiology with zoology has been successful. Peabody and others give simple experiments which may be tried with the lower forms used in a course in zoölogy. Leave technicalities until a future time.

METHODS IN PLANT PHYSIOLOGY—LIGHT AS A FORMATIVE INFLUENCE.

Controlling and producing methods give us one phase of physiology. Light is the only new factor, yet from the point of view of ecology, light as a formative influence is instructive in showing the dependence upon light of plant structures as far as direction taken and rates of growth are concerned. All illustrations may be derived from one plant—*Marchantia*. Light helps form structure, rhizoids, spore division, dorsiventral position. The monopodial branching may be changed to dichotomous by changing the light. The presence of cups and reproductive organs may be governed by light. It is important to know, even if the knowledge is applicable to only one plant, that by controlling its environment you may have at your command the structure and functions of a plant.

Discussion.

1. Mr. E. L. Scott, Bay City, West Side:

In planning for a short introductory course in science to precede the more technical work, it was thought best to modify the regular course in botany so as to include the teaching of the simpler scientific processes. My own method is to explain, in as incidental manner as

possible, the principle involved when starting the student upon a new experiment. In studying plant hairs on the mullein, attention may be lead to the air spaces inclosed between the hairs. An experiment or two may be made on the effect of artificial air spaces upon the gain or loss of heat of a body. Attention was called to the effect of air spaces in woolen clothing, walls of houses, etc. The principle of buoyancy may be taught in the study of floating stems, fruits, or seeds.

A comparatively simple experiment is on showing the removal of carbon dioxide from the air. A pneumatic trough is provided (and here I found it necessary to give a short lesson in air pressure, with two bell jars), carbon dioxide is made and tested by various simple tests. Then each of the jars is filled with air from the lungs and in one is placed a healthy plant. The whole apparatus is now placed in a sunny window for a day when the contents of both jars are tested and results compared. Simple chemical formulae are quickly picked up and very simple equations may be introduced after a time.

In this course the student gets no knowledge of the more complicated processes of chemistry and physics but the simple processes which he again resees in the higher courses with pleasure.

2. Dr. J. B. Pollock, University of Michigan:

Is it not time for a course called "Physiology" which shall include plant and animal physiology and what we now call human physiology. The processes of plants and animals are complimentary. Where can you get a perspective in nature equal to that of the plant deriving energy from the sun and thereby being enabled to furnish nourishment for all life. Get perspective and arouse interest through physiology.

In using *Marchantia* to show the effect of light on the formation of a plant, pour the gemmae from a small cup of water into a small plant crock saucer, which is set in a plate containing water and covered with a bell jar. Set the saucers, one in strong light, one in diffuse, and one in the dark. In the last there is no growth, in diffuse light the plants grow long but slowly, in direct light growth takes place in a few weeks. The effect of light on the structure is now determined by examining sections of these plants.

It is wrong to speak of the formative influence of light alone for we have here a resultant of factors, a chain of phenomenon which cause effects. It is necessary to be exceedingly careful in drawing two broad conclusions from two few results.

An Automatic Aerating Device for Aquaria in Class Room. Dr. L. Murbach, Central High School, Detroit:

This apparatus which is simple and exceedingly helpful is described fully in the *American Naturalist*, Vol. xli., No. 482, pp. 61-64.

An Easy Method of Preparing Histological Sections of Bone. Professor D. D. Magers, State Normal College.

Grind the sections with coarse stone between the fingers, then work down still thinner between two fine whetstones. Place on the slide and seal down the cover slip with Page's glue. This is much more satisfactory than Canada balsam as a seal.

THE REFORM MOVEMENT IN THE TEACHING OF MATHEMATICS IN GERMANY.

PROFESSOR W. W. BEMAN, UNIVERSITY OF MICHIGAN.

"Perhaps never in the course of our culture development has the problem of education roused the feelings to so high a pitch as in the last decades and at the present time. Professional and non-professional men take up the cry and almost all higher professional circles, science and art, crafts and trades, take sides on the pending questions of education. People speak of "a century of the child" and mean by this that the problems of child culture and child education which are now in the foreground are closely connected with intellectual movements of international extent. Indeed we must make it clear that we are not leading with a superficial movement touching only our own narrow fatherland, but with deep flowing currents affecting almost all enlightened countries in the same or similar fashion. In proof of this we need only recall that in almost all European countries and in the United States of America reform movements strictly parallel to our own are going on in the province of mathematical teaching, which in France have already reached a solution where deference has been paid to the wishes of scientific men in a reorganization of mathematical teaching going far beyond what we have gained by all our striving in Germany. Further to take an example familiar to wider circles we may point to the problem of the education of our girls, so closely connected with the "woman question," where the international character can not be denied. With the recognition of the international character of these educational strivings is connected the deeper insight into the extraordinary significance of these questions for the general welfare of our country and its future in both ideal and practical regards. In face of the great difficulties connected with the realization of all desires, we can only say: Heavy and full of responsibility is the task of those who are called to steer the ship of education, to guide it away from treacherous shoals and past threatening rocks, without endangering the youth confided to it, to the safe harbor of a mental, moral and physical development suited to the culture of the present day."

Such are the views of Dr. Gutzmer, Chairman of the Commission appointed by the Association of German Naturalists and Physicians at

the Breslau meeting in 1904, as expressed in the introduction to his General Survey of the Work of the Commission, and they give a good idea of the far reaching extent of the movements now going on in different countries and on different continents for the improvement of the teaching of mathematics in the secondary schools. For nearly two decades the discussion has become increasingly active in Germany. A decided advance was made in the adoption of the Prussian curricula of 1901. In recent efforts to secure still further reforms the most prominent part, undoubtedly, has been taken by Professor Felix Klein of the University of Goettingen. He early recognized the limitations of the instruction then given in the secondary schools, the need of a closer articulation of the work in the gymnasium with that in the University, and the advantage to be gained by the giving of courses of lectures in the University upon the mathematics of the secondary schools, throwing new light on so many of its problems. In vacation courses of lectures and at associational gatherings he promulgated his views so widely that at the general meeting of the association at Cassel in 1903 a resolution proposed by him was adopted providing "that the totality of the questions relative to instruction in mathematics and the natural sciences be made the subject of comprehensive discussion at the earliest opportunity." The consideration of these questions was made the principal feature of the session in Breslau in 1904, and after a general discussion of the reports there presented all the questions involved were referred to a Commission of twelve representing as completely as possible the various interests concerned. The commission entered at once upon a most elaborate investigation of the problems assigned, and in spite of the difficulty of the task, was able to make a first report dealing with the gymnasia, the realgymnasia and the oberrealschulen at the Meran meeting in 1905, and a supplementary report dealing with the reformschulen, the six-year realschulen and the higher maedschenschulen at the Stuttgart meeting in 1906.

A slight digression here with regard to the types of schools in Prussia may be of service. The older types of Prussian secondary schools have a course of nine years, (in order from the lowest to the highest), sexta, quinta, quarta, untertertia, obertertia, untersecunda, obersecunda, unterprima, oberprima, corresponding roughly to our grades from the fifth to the twelfth, plus the freshman year of college. The boy may enter at nine and the normal age at graduation is nineteen. There are three kinds of these institutions, the gymnasia, with both Latin and Greek, the realgymnasia, with Latin but no Greek, the oberrealschulen, with neither Latin nor Greek. Generally these institutions are separate and the boy must make his choice of the type of education at the age of nine or ten. In individual schools all work is prescribed.

More recent types of schools are the reformschulen which give the

three types of education in the same school, with a uniform course of study for the first three years, then branching off into one or the other line; the six-year realschulen, and the six-year progymnasias and prorealschulgymnasias; the lyzeen and oberlyzeen for girls.

The commission suggests only a slight modification of the number of hours given to mathematics, increasing the number in the gymnasia and diminishing the number in the realschulgymnasia so as to provide for a uniform course of four hours a year for each of the nine years, in both types of school.

It says: "In the mathematical work it is essential that the teaching get rid of much ballast and that it conform the modern problems of the school still more closely to the ideas set forth in the remarks on method in the Prussian curricula of 1901. With full recognition of the formal culture value of mathematics, one-sided and practically meaningless special details should be omitted, while the power to see and comprehend mathematically the phenomena of nature and the relations of human life should be roused and strengthened".

Accordingly the commission declares the cultivation of the power of space intuition and the training to habit of functional thinking to be the most important problems of mathematical teaching. In this way the task of logical training is not only not hampered but is materially aided by the new trend of mathematical teaching.

The commission expressly recommends large freedom for the teacher in the selection of details, whether of topics or treatment, in forming the curriculum. Full liberty has been left as to the way of dealing with the infinitesimal calculus, a matter in which the commission was unable to reach an agreement; in the curriculum the commission assumes that the work in Prima of the gymnasia shall go forward to the threshold of the infinitesimal calculus, but as to the way of reaching this end room has been left for further experiment and for individual initiative.

The following is set up as the goal to be reached by mathematical instruction in the gymnasia: a scientific survey of the articulation of all the material dealt with in the school; a certain facility of mathematical apprehension, made practical in the solution of various problems; finally and above all an insight into the importance of mathematics in the exact knowledge of nature and the culture of the day in general.

From these points of view the commission has devised the following curriculum suited more particularly to the humanistic gymnasia.

MATHEMATICAL CURRICULUM FOR THE GYMNASIA.

A. Lower Grade.

Sexta. Nine years of age.

Fundamental operations with whole numbers, abstract and denominate, in limited number space. German measures, weights, and coins.

Exercises in the decimal notation and in the simplest calculations with decimals as a preparation for fractions.

Quinta. Ten years of age.

Arithmetic. Continued practice in computations with concrete decimal numbers, with an extension of the range of measures employed (also foreign weights and coins), measurement of lengths of different kinds (also field measurements); simple problems in the mensuration of surfaces and volumes with effective use of the connection between volume and weight. (In all such calculations a rough estimate of the order of magnitude of the result is to be made beforehand). Divisibility of number. Common fractions (in the first place as concrete numbers).

Propedeutic Geometry. Introduction to the fundamental notions of space perception, but in such a way that space shall appear principally as the medium for the investigation of plane relations. Space extensions, surfaces, lines, points, first illustrated by surrounding objects and verified by solids of the most different types. Plane figures, regarded first as portions of boundaries of solids, then as independent forms, in which the notions of direction, angle, parallelism, and symmetry are to be made clear. Practice in the use of straight edge and compasses; continued exercise in drawing and measuring.

Quarta. Eleven years of age.

Arithmetic. Decimal fractions. Contracted method (in simple cases). Rule of three, avoiding all extravagant use of schematic forms. Problems from business life, especially simple cases of percentage (interest, discount). Preparation for algebra by the review of suitable problems, previously solved, with the use of letters instead of definite numbers. Meaning of proposed algebraic expressions and evaluation of the same for assigned numerical values of the letters. Connection of the rules of mental arithmetic with those for the use of parentheses.

Geometry. Theory of straight lines, angles and triangles. Variability of figures; interdependence of the parts of a triangle; limiting cases (right triangles, isosceles, equilateral). Simple theorems dealing with the parallelogram, arising from the construction of the figures.

Untertertia. Twelve years of age.

Algebra. Systematic survey of the fundamental rules of arithmetic in formulae. Notion of relative numbers, developed by practical examples and illustrated by the number line extended both ways to infinity. Rules for the use of relative numbers. Continuation of exercises in the evaluation of algebraic expressions involving negative numbers also and constant emphasis upon the functional character of the variations arising. Application to equations and problems of the first degree with one unknown quantity. Distinction between identities and conditional equations.

Geometry. Extension of the theory of the parallelogram. The trapezoid. Fundamental theorems of the circle. Consideration of the effect of changes of size and position of parts of the figure upon its general character. Constructions closely connected with the course of study, omitting all problems that can be solved only by special artifices.

Obertertia. Thirteen years of age.

Algebra. Supplement and extension of literal arithmetic, especially factoring of polynomials. Simplest theorems in proportion. Equations and problems of the first degree with one or more unknown quantities. Dependence of an algebraic expression upon the variables involved. Graphic representation of simple linear functions and use of this representation for the solution of equations.

Geometry. Comparison and measurement of areas involving more complicated rectilinear figures; approximate calculation of curvilinear areas. Review of the mensuration in Quinta. Problems like those in Untertertia.

Untersecunda. Fourteen years of age.

Algebra. Powers and roots. Equations and problems of the second degree with one unknown quantity. Relations of coefficients and roots. Consideration of the quadratic function of a single variable, with its variation, by graphic representation. Solution of problems of the second degree in one unknown quantity by the intersections of straight lines and parabolas. Consideration of graphic representation as a means for the illustration of relations found empirically.

Geometry. Theory of similarity with special stress on the perspective position. Proportions in the circle. Computation of approximate values for the circumference and area of the circle by the use of regular polygons. Introductory study of the mutual dependence of the angles and ratios of the sides of a triangle, especially the right triangle. Construction and testing of tables for this dependence (as preparation for trigonometry), including practical problems in illustration (use of the plane table).

B. Upper Grade.

Obersecunda. Fifteen years of age.

Algebra. Extension of notion of power, conception of the power as an exponential quantity; idea and application of the logarithm. Arithmetic series of the first class and geometric series, application of the latter to compound interest and annuities (in the simplest cases, taken from actual experience). Graphic representation of the mutual dependence of number and logarithm. Napier's rods. Solution of quadratic equations with two unknown quantities by algebra and by graphic construction.

Geometry. Trigonometry as connected with constructive plane geometry. Application to practical problems in the measurement of

triangles and quadrilaterals. Characterization of the mutual dependence between the variation of the angle and the variation of the function by the formulae of trigonometry; graphic representation of this dependence. Treatment of suitable problems in different ways by construction and by calculation. Introduction to harmonic relations and the foundations of modern geometry as the final step of plane geometry.

Unterprima. Sixteen years of age.

Algebra. Connected survey of the functions previously studied in their general course, whether increasing or decreasing, (for the eventual introduction of the notions of the derivative and the integral) with the use of numerous examples from geometry and physics, especially mechanics. Simplest theorems of permutations and combinations with a few examples.

Georetry. Solid geometry with reference to the most important elements of the theory of projection. Exercises in perspective drawing. Simplest theorems of spherical trigonometry. Mathematical geography, including the theory of map projection.

Oberprima. Seventeen years of age.

1. Conic sections from both the analytic and the synthetic side, with application to the elements of astronomy.

2. Reviews of the whole realm of school mathematics, where possible in connection with more general problems, to be solved both analytically and graphically.

3. Retrospective survey, involving historical and philosophic aspects of mathematics.

Explanations of the Mathematical Curriculum for Gymnasia.

1. In the arithmetic of the lower classes the number circle in which the examples are to be taken should be properly restricted; numbers above 100,000 should be avoided. Mental arithmetic is to be vigorously cultivated. Measures, weights, and moneys having to do with practical business conditions are to be emphasized. Problems from common life must deal with relations that are real, not fictitious or never occurring in practice. So far instruction in arithmetic is largely instruction in business matters but, in general, one should not go beyond what is expected of an educated adult. On the other hand arithmetic is to be regarded as a preparation for algebra. The distinction between the two branches, while pointing out their inner connection, is therefore especially to be considered. For the same reason henceforth stress is to be laid on a good and logical symbolism. This should not be antagonistic to that already in vogue in mathematical teaching. In every case it should be the business of the mathematical director or a departmental conference to secure a large degree of uniformity.

The instruction in geometry should be closely connected with natural intuition and proceed from practical measurements. One

should most carefully avoid estranging the intelligence by a pedantic form of proof in the case of matters which appear self evident, but rather seek to shape all logical proofs in accordance with an apprehension of intuitive relations, and go forward gradually with this form of treatment. For example, the congruence of figures is to be deduced as an obvious consequence of a practical construction which admits of but one result. Indirect proofs are to be avoided as far as possible. The converse of relations established directly, so far as they are manifest to a healthy understanding, as is true in most cases, should be treated as self evident. In drawing clearness is to be favored in every way, by shading, use of colors, and such like, while non essentials, minute details involving difficulties are to be avoided. In the study of plane geometry the connection with the relations of space of three dimensions should be brought out in a vivid way, especially by the introduction of suitable examples from actual experience. The use of models is to be recommended.

2a. In the middle classes in place of arithmetic comes algebra, for which preparation has been made in the last section of *Quarta* by the systematic treatment of all of the arithmetic already gone over and the development of a certain familiarity with literal arithmetic. In the systematic treatment of algebra one should avoid pedantic forms of proof in which often lurks the danger of reasoning in a circle. Rather the theorems of algebra are to be treated as a scientific grouping of what already has a manifold existence in consciousness. Accordingly the introduction of negative numbers is to be effected by examples from practical life, the representation on the number line as the intuitive summing up of knowledge already acquired, so that the rules for dealing with relative numbers, i. e. positive and negative, shall appear simply as the natural extension of operations with absolute numbers. All artificial operations, division of complicated polynomials and such like are to be avoided, while factoring of polynomials (as in the extraction of square roots) is to be studied carefully; in proportion only the simplest relations are to be considered but the notion of direct and indirect proportionality is to be insisted on.

In this way there remains time to devote the chief part of the work to the development of functional thinking for which preparation has already been made in the propedeutic treatment of algebra at the close of the work in *Quarta*, where the variation of algebraic expressions by the insertion of different values for the individual letters involved was clearly made manifest.

2b. This habit of functional thinking is to be cultivated in geometry also by the consideration of the changes which the whole situation undergoes as the result of changes of magnitude or position of individual parts, e. g. the change of form of quadrilaterals, change of relative

position of two circles, etc. But at the same time the consideration of the relations thus arising, which can be arranged in many different ways according to the point of view, furnishes an excellent means for schooling the logical thought, a means to be used to the fullest extent; so also the discussion of transitional cases and the working out of the notion of limit. To permit this exercise many details of the previous work are to be omitted, many things to be touched upon only lightly; especially is the extension of theorems proved for rational relations to the case of irrationality to be treated from the practical standpoint exclusively, i. e. with reference to the possibility of diminishing at pleasure the error arising from the substitution of rational numbers for the irrational.

Problems of construction are to be dealt with only in close connection with the course of study; in the so-called analysis especial regard is to be had to the train of thought by which one really arrives at the solution, i. e. the analysis is to be treated, so to speak, psychologically; especial stress is to be laid on the rapid development of the functional way of thinking (where again the limiting cases are to be discussed first and foremost). Further in these classes a road is to be broken for a combination of arithmetical and constructive mathematics, partly by the first introduction into graphic representation, partly by the practical verification of the mutual relationship between line ratios and angles.

3. With regard to the upper classes a few notes will suffice. In the mathematics of Obersecunda the extension of the notion of power is to be effected by the introduction of negative and fractional exponents in an essentially functional conception, where occasion is obviously given to put arithmetic and geometric series into the closest correlation.

In trigonometry all artificial transformations are to be avoided, to make room on one side for a practical estimate of actual measurements and on the other hand for the functional conception of the fundamental elements. Use of models.

In connection with the final work in plane geometry, to be brought into organic connection with trigonometry by suitable problems, a clear understanding of the difference between projective and metric relations is especially to be developed.

As to the introduction of the fundamental notions of the infinitesimal calculus into the work of Unterprima, the commission has spoken of it only as "eventual," because as to the way and manner of accomplishing this no decisive opinions have been formulated in educational circles. The commission will leave further determination of this matter to the departmental teachers of each institution. Quite obviously only the simplest possible examples of differentiation and integration can be treated. The introduction of problems from physics, especially from mechanics, not only aims at the correlation of mathematical and physi-

cal thought, a thing much to be desired, but also may be regarded as a deliverance of physical instruction from its present restraints.

In solid geometry the use of formulae for the consideration of volumes is to be restricted as far as possible in favor of the procedure appealing more directly to intuition and putting the essential notions of descriptive geometry in the foreground. Free use should be made of simple exercises in the construction of problems of solid geometry in which emphasis is laid on skill in drawing.

Here also according to circumstances will be found occasion to present in a new light certain sections of plane geometry previously discussed (theory of similarity, harmonic relations) by a derivation of their fundamental notions from the standpoint of solid geometry.

In Oberprima the analytic and synthetic methods of treating the conic sections should be carried along side by side as far as possible. In the synthetic geometry a good deal of drawing is especially to be recommended so as to give a clear conception of the dependence of the form of the conic upon the cone and the position of the cutting plane as well as upon the position of the foci and directrices. The limiting cases here also deserve special consideration.

Mathematical geography (in Unterprima) and the elements of astronomy (in Oberprima) should be closely correlated with the corresponding work in physics.

In the final examination the mathematical development of the pupil and its influence on his general development will be most clearly recognized if we do away with the present requirement of the solution of four special problems (from plane geometry, solid geometry, algebra and trigonometry) and instead call for a connected presentation of a general theme together with the complete treatment (analytic and graphic) of a problem. Likewise in the oral examination more stress should be laid on a thorough grasp of the subject than upon the memorizing of many special formulae.

As compared with the curriculum of 1901 the new curriculum "cuts down somewhat the more complex calculations and defers to later periods the more abstract topics and methods; on the other hand, it introduces concrete geometry a year earlier (at the age of ten instead of eleven) demands constant use of drawing and measuring, utilizes graphic methods throughout, brings the idea of functional variation into the foreground early (at the age of twelve) and utilizes it freely thereafter, introduces the idea of co-ordinates, of plotting linear expressions and the graphic solution of linear equations at the age of thirteen (four years earlier than in the curriculum of 1901), permits the introduction of the idea of the derivative and the integral in the next to the last year of the course (age seventeen), and lays marked stress on the application of mathematics as widely as possible."

A detailed comparison of this curriculum with the French programmes of mathematics of 1902, somewhat modified as to the distribution of topics in 1905, would be very interesting, but time will not permit. The most striking differences are these:

In France the method of instruction is didactic; in Germany heuristic, for the most part.

In France the material is arranged in concentric circles; in Germany in a continuous sequence.

In France considerable attention is given to historical notes on the development of the subject; in Germany comparatively little.

In France the programme permits the teaching of plane and solid geometry simultaneously, after the fashion which is said to have produced such good results in Italy, and some teachers are already enthusiastic; in Germany, while attention is called to the close relation of the two branches, they are apparently taught separately.

In France the class of philosophy solves such equations as $x^3+px+q=0$ by the intersection of the curve $y=x^3$ with the straight line $y+px+q=0$; uses the derivative to determine tangents and study the sense of variation of a function; uses the integral to determine areas and volumes; in Germany, the class of oberprima does not go beyond Des Cartes.

In France the development of the inner connection of the various branches of mathematics as in the combination of graphic and analytic methods, and the prominence given to fundamental notions, especially the function, are matters that have appealed very strongly to the German commission. No better idea of the line of thought which seems to have governed in the formation of the French programmes can be given than what is found in two paragraphs from the preface to Tannery, *Notions de mathématiques*, a book intended as a commentary on the work of the last year in the lycée.

"We scarcely know what mathematics is, we do not suspect its extraordinary extension, the nature of the problems it proposes and solves, till we know what a function is, how we study a given function, how we follow its variations, how we represent its course by a curve, how algebra and geometry render mutual aid, how number and space illustrate each other, how we determine a tangent, a volume, an area, how we are led to create new functions, new curves, to study their properties. These are the very notions and the methods we need to read technical books where mathematics is used. It is indispensable to any one who wishes to comprehend something of the rapidly advancing scientific movement and the increasingly numerous scientific applications, which day by day tend to modify more profoundly our ways of thinking and of living.

They are simple and easy when reduced to essentials only, easier than many of the demonstrations we do not hesitate to give to our

students, which are long and complicated, and have no bearing beyond what they prove. They ought more and more, in my judgment, to penetrate into our elementary teaching, to abridge it and to strengthen it. No doubt we must think of the development of the mind, but does any one think that special and limited methods, that questions which the pupils vaguely feel to be useless or factitious, contribute to this better than general methods? And if pupils recognize the power of these methods will they be less disposed to take some pains to master them and apply them with confidence?"

HISTORICAL CONFERENCE.

EDITH M. KIMBALL, DETROIT EASTERN HIGH SCHOOL, SECRETARY.

The Historical Section met with the English Section in two joint conferences, and held also a separate conference. At the separate conference, reports were presented from the committee on recent publications of special interest to teachers of history, by Professor A. L. Cross and Dr. Webster Cook. Their papers are printed herewith. Miss Kimball then led a discussion on "Schemes for Securing Accuracy and Interest in the Study of History in the Schools." In this discussion Miss Buell, of the Ypsilanti Normal, emphasized the importance of understanding words, and the use of the dictionary to secure accuracy; Miss Doty, of Three Rivers, by means of a chart, showed her method of condensing and clearly presenting the history of the Hebrews; Miss Cleveland, of the Central High School, Detroit, gave a general outline of her method of conducting a recitation; Miss Parker, of Detroit, told of a historical club she had formed which has secured enthusiasm and accuracy of information; Mr. Davis, of the Central High School, Detroit, showed a chart, the general idea of which might be used for any period of history to show the rise and fall of any power during any number of centuries—he suggested that one such chart might be used and developed by several classes if kalsomine is employed for the main structure; Miss Eliott, of the Detroit Eastern High School, presented a method of quiz for revealing whether knowledge is accurate or not. She also suggested the use of drawing to secure accuracy in reading and conception.

The Section reëlected for the ensuing year, Professor Earle W. Dow, as chairman, and Miss Edith Kimball, as secretary. The chairman appointed to be members of the executive committee for 1907-1908, along with the chairman and secretary: Professor G. W. Bell, Olivet College; Mr. C. S. Larzelere, Central State Normal, Mt Pleasant; Dr. Webster Cook, Saginaw High School; Miss Eleanor Ferris, Detroit Home and Day School; Miss Edith Todt, Mt. Clemens.

THE HISTORICAL AND BIOGRAPHICAL BACKGROUND IN
TEACHING OF LITERATURE.

PROFESSOR R. M. LOVETT, UNIVERSITY OF CHICAGO.

I have been asked to speak on the biographical and historical background in the teaching of literature,—whether as an advocate for it or as an expositor of it, I am a little uncertain. I observe, however, that my remarks will be followed by an address on the correlation between history and literature. I shall therefore devote my paper to the general aspect of the subject, leaving the practical working out of problems in connection with it to my successor.

At the outset a word ought to be said of the reasons why the interpretation of literature through the historical and biographical background are opposed, in the interest of other methods of literary study. These reasons are, I think, two,—one resting on general and theoretic, the other on practical grounds.

The historical method of the study of literature was put forward in the last century as part of the general *aufklärung* caused by the position which that movement aroused. Taine was the chief sponsor for the method, and his famous theory of literature as the product of the man and the moment met somewhat the same objections as the so-called materialistic view of history, with which the name of Karl Marx is associated. The scientific explanation seemed somehow to belittle literature. To regard a work of art as a phenomenon, to be accounted for on scientific grounds, as the natural product of a man and his environment, seemed to deprive that work of what was most precious in our thought of it—its, so to speak, ethereal and miraculous character. It seemed to reduce what we felt as spiritual and eternal, to material and temporal. If we thought overmuch of a certain poem or drama as the product of a finite existence addressed primarily to men of like passions with ourselves, as colored by those passions and shaped by the transitory demands of a single stage in human progress, we seemed to deprive the work in question of its permanent appeal, and by so much to minimize our literary inheritance. We were doing for our great men what Goldsmith accused Burke of doing for himself—

“Who born for the universe, narrowed his mind,

And to party gave up what was meant for mankind.”

Therefore the advance of the historical method was met by the cry for the study of literature *as literature*. Now this formula is philosophically meaningless unless we hold that literature can be thought of as having a being of its own, as a thing-in-itself, apart from its relations. And consequently there at once followed the query “What is literature?” this thing-in-itself, apart from its relations—the thing that

Hamlet is, and *Sartor Resartus* is, and Macaulay, or Pope, or anyone else whom we do not like to read, is not? And there the theoretic opposition to the historical method has halted, for, so far as I know, no one has been able acceptably to define literature as a thing-in-itself, a thing apart from its relations to human life, and hence to human history, individual and racial. What is literature, if it be not the written word of life, the expression of the thought of a living man among living men, set down for himself, for them, and for us who follow them? And how is it possible to conceive of literature in this way, as vital, as the word of life, without taking account of the historical and biographical background,—account of the human being who uttered himself, the men and women from whom he came, among whom he lived, and whose lives he expressed? So far from minimizing our inheritance in literature, the historical view strengthens our claim, by proving the title of the original possessors, and our succession from them. And so far from reducing the spiritual and miraculous character of literature, the biographical view brings us to an intimate and personal appreciation of it, by showing us, indeed, how the word was made flesh and dwelt among us.

The second reason for the neglect of the historical and biographical background in the study of English Literature is eminently practical, and grows out of certain special and peculiar facts. The two supreme examples of literature in English, from which masterpieces for study are most authoritatively chosen, and the study of which in turn tends to set the method for other literary studies, are the Bible and Shakspeare's plays. Now in the case of the former, it has been since the Reformation a matter of religious loyalty to take the substance out of its historical perspective. The Bible has in fact, become, by the operation of this process, an English book contemporary with each generation. We think, as our fathers thought, of Abraham, and Samuel, David, and Job, as Englishmen, not as Hebrews. As children we were taught that God's dealings with Israel, or St. Paul's advice to the early churches, were ethical finalities for our own day. This being the case it became a matter of enormous importance to find the exact meaning of every word, every letter, and the text therefore became a subject of minute, if not scholarly, exposition and interpretation. Now whatever may be said of the effects of this wonderful assimilation of Hebrew literature on the English character, or imagination, or spiritual life, in the past, it is certain that as a method of literary study to-day that attitude toward the Bible is false. We find modern biblical instruction directed more and more toward replacing the scriptures in their historical perspective, giving to them the local color of the times for which they were written, and the personal significance of the human authors of them. How greatly Biblical study has gained by this process is shown by the revival of such study throughout this country. If I were to confine myself to a

single argument for the use of the historical and biographical background in teaching literature, I should base it on modern experience in Biblical education,—pointing out how much more vital and intimate becomes our apprehension of, let us say, the prophecies of Hosea, when we consider that these utterances are not merely wide sayings of vague, universal application, but words directed with accurate aim at evils growing out of a social situation in the Jewish kingdom, not unlike, if you will, that of our own day in America—words, moreover, impelled by the personal force of a man who had in his own life borne the sorrows of his time and nation.

Nor is the case of Shakspeare very different. I have heard a well-known professor of English say, with some heat, that Shakspeare lived for us because he had become a superstition. And there is no doubt that superstition or fetichism plays a large part in even our saner appreciation of Shakspeare's work. Universal, myriad-minded, all-comprehending genius, he should be read for his knowledge of human nature, his art, his very words, considered in themselves as absolutes, quite apart from Warwickshire and London, from Ann Hathaway's alluring cottage, and the Globe stage, from the Protestant chivalry of Elizabeth's court, and the mob of groundlings hankering for the sensations of Italian romance, and the wonders of overseas. And Shakspeare offers peculiar temptations towards so-called intensive textual study. His language is certainly difficult: it calls for hard wark, searching, comparing, memorizing. And moreover, his material, drawn from Plutarch, Boccaccio, or Holinshed, is so romantic, so remote from the daily life of himself and his contemporaries, that we can apparently dispense with the historical and biographical mode of approach. His drama lends itself to, if it does not in a measure dictate, the conventions of our own stage, so that we can easily mistake his art for modern. Only his characters and his language seem to call for our supreme effort—and so we find, as I found the other day, a class in a high school which had just spent six months on the text of *Julius Caesar*—as much time as pupils of the same age would have taken to read an equal portion of the *Anabasis*.

I believe that the peculiar position of Shakspeare in our literature is responsible for most of the disaffection toward the historical and biographical method which we still find in our schools. The greatness of his work in itself, its difficulty, the scantiness of our knowledge of the man, and the apparent uselessness of contemporary material in explaining him and his work—all these seem to put Shakspeare, like the English Bible, out of all historical perspective, and to make him an object of reverant verbal attention. And since the study of literature in our schools is usually preparatory to the study of two or three of Shakspeare's plays, what more natural than that we should give our pupils a preliminary taste of the same method applied to, say, Scott's *Lady of the Lake*, or

Dryden's *Alexander's Feast*, to cite examples from my own youthful experience. Suppose we had for the corner stone of our literature Dante, instead of Shakspeare—a poet whose every canto is instinct with the political, social, religious, personal life of his century—we should not find it so easy to fall into this heresy of the sufficiency of textual study.

For heresy it is. I do not mean for a moment to deny the importance of linguistic interpretation and appreciation, of character analysis, of considerations of dramatic art, as applied to Shakspeare. I once gave a course myself in which three months were devoted to the reading of three plays, in which time not a word was breathed of any subject except the text. I do not think it was wisely done—but then I did not conceive myself as teaching literature. I was giving a course on the language of Shakspeare. And I do not belittle the importance of the training derived by the class of schoolboys who spend six months on *Julius Caesar*—tho' I suspect that the result was largely moral—the attainment of the power to do unpleasant things without delaying for self-pity. But I do believe that the intellectual result in both classes could have been attained completely with the addition of larger things, and without the infliction of the torture of unutterable boredom, if we—my high school colleague and I,—had introduced Shakspeare as a man who lived among other living men, and spoke to them in real language, through an institution which had a strange power over them—sjoke of marvellous worlds of the past and the distant which had come suddenly into view, giving of their wonders to make rich and exciting the texture and pattern of the life which the poet and his hearers lived.

Such introduction cannot be accomplished by telling the class to read the thin little essays on the life of Shakspeare, or Shakspeare's London, or the Elizabethan stage which accompany the school texts of Shakspeare's plays. It can be done only by presenting the English Renaissance and the age of Elizabeth—that time when the human spirit excited by the wine of the new learning and the visions of the new world, expanded, transcended the bounds of its here and now; and yet in its emancipation found new sanctions for its reason and its will in the consciousness of sharing in a religious mission and a national destiny.

The dynamic force of that expansion can be realized in the career of Raleigh, seeking his El Dorado in Guiana. It can be realized in the life of Marlowe, dying at thirty, after singing of things beyond human power, "with mouth of gold, and mourning in his eyes." The corresponding strength of the pressure of national duty, and religious faith which held in check this outbreak of personal force can be measured in the careers of Sir Francis Walsingham and his son-in-law, Sir Philip Sidney, both of them statesmen whose political thought was touched with the idealism that came from the greatness of the cause of the reformed faith in Europe, and the romance that accompanied the dream of English empire beyond the seas.

Once establish this conception of the days of Elizabeth as really spacious days, and of Shakspeare as living to the utmost in them, kindling to all suggestions of that marvelous time, and we have the clue to the mystery of his language and art. His magic of phrase, his daring energy of metaphor, his compactness of structure,—these things become not merely curiosities of diction and syntax, but veritable notes of character, signs of the age, to be sought with enthusiasm, not merely accepted and catalogued with patient stocism.

I once saw an ingenious collection of the passages from Shakspeare which could be said to have about them in highest degree the resplendent glamour of the purest poetry, lines of which the poignant beauty thrilled one almost to pain. It is astonishing how large a body of this rarest product Shakspeare's work contains; and equally astonishing is it that thus winnowed and separated from the mass, this best and rarest part should be so infinitely less than the whole. And the same is true if, instead of lines and phrases, we subtract acts and scenes, or even whole plays. They are but fragments unless through them we obtain a glimpse of the greater unity in which they have their being. Nay, the process of separating a happy moment from the rest of a man's life—that instant, for example, in which Shakspeare wrote

"Chanting faint hymns to the cold fruitless moon,"

or

"This precious stone set in the silver sea,
This blessed plot, this earth, this realm, this England—"

or

"Let us sit upon the ground,
And tell sad stories of the death of kings,"—

is not this process, I say, analogous to that of separating the single life from its context, and beholding in it a mere miracle, wrought how, or to what end, we know not? Nay, what gives to these lines their haunting power is the fact that they reach far back into the experience of a man, the experience of a world of men. The very note of the genius is that at each instant he is conscious of his whole experience, and comprehends not merely himself but something of all men who make up for him the past and present. The greatest literature is that which has behind it not merely the momentary magic of the artist, but the life of the man, and the life of generations of men.

Ages of heroes fought and fell
That Homer in the end might tell,

* * * * * * * *

And countless hearts on countless years
Had wasted thoughts, and hopes, and fears,
Rude laughter and unmeaning tears
Ere England Shakspeare saw.

And if, in our study of Shakspeare, a figure so far in the foreground of our canvas, we need the reinforcement of the historical background to make perfect our comprehension of his greatness, how much more do we need it in the case of minor men, who are indeed properly a part of that background, and who, drawn away from it, tend to lose all resemblance to life, and become puppets—puppets whom, I suspect, many a weary pupil has accused the educational authorities and the text-book trust of inventing for their profit and his loss.

But before coming to close quarters with the background itself let me say, by way of summary, and lest I be accused of magnifying the historical method at the expense of others, that I conceive that there are, roughly speaking, five methods of literary study, corresponding to five attitudes which the critic may take toward a work of art.

The first of these is one merely of interpretation—that in which the critic stands between his masterpiece and the public only in order that the piece may justify itself to the general mind. This interpretative study may extend from the glossing of the obscure word or allusion, to the explanation of the master's purpose in the entire work; and it is, indeed, a most dignified and useful office of literary criticism and instruction.

The second may be defined as aesthetic appreciation and judgment, the classification of the work by its form, the recognition of comparative merits, the marking of defects, in short, what we understand ordinarily and conventionally as criticism.

And, third, there is the historical method, born of the science of the 19th century and the theory of evolution—the criticism which tries to explain the object in the light of its origin and circumstances, not to reduce it to the dimensions of an isolated experiment in molecular motion, but to raise it into its higher aspect as part of the experience of mankind.

Fourth, I should mention the ethical attitude, the appraisalment of moral values, perhaps expressed in its simplest form in the question—Does the work under discussion leave us better or worse fitted for life?

And, finally, there is the attitude called the impressionistic—an attitude which finds expression in the statement of purely personal feeling toward, or reaction upon, the subject.

I believe that all five points of view have their place in our classroom; the last two, perhaps, to be used sparingly. Of the other three I should put the historical first in point of time, partly because of its value, as I have tried to show in the case of Shakspeare, as an aid to the others. It is an aid not only in supplying material for interpretation and standards for comparison; of greater value is it as a means of arousing interest, of giving stimulus to the work which must needs

be done by the pupil, willingly or unwillingly. This work will be done willingly if the pupil is brought to see the meaning of what he is doing, and to conceive the object on which he is engaged as something which was real and had life. And in most cases we must show the makers of our masterpieces as living men, before a normally minded student will find any vitality in their works.

This especially ought to be noted, that the historical background is the means by which interest once aroused may be transferred from one writer and carried forward to another. The normal human mind loves continuity: history supplies this principle of continuity in the study of literature—it is like the plot in a novel. And so, departing from Shakspeare's plays, no better transition can be devised than to show how, with the death of Elizabeth, the great age which takes her name passed also, with its great men, and great ideals, and great poetry. The world of the Stuarts seems somehow grown smaller, and though men still dreamed of conquering it entirely, as did Bacon when he proudly took all knowledge to be his province, they realized that this conquest must be by means, not of the imagination, but of patient observation and experiment,—the beginning of that scientific movement which is to-day the basis of our intellectual faith, to which Bacon gave imaginative expression in *The New Atlantis*. The new lands beyond the sea were no longer an unlimited opportunity for adventure and discovery, but became a matter for businesslike colonization; and similarly the spirit of man turned from its great thoughts and dreams to the practical art of living as set forth in Bacon's essays, and to minute self-study such as appears in the long list of autobiographers from Sir Thomas Browne to John Bunyan and Samuel Pepys.

The sense of national unity, which had been inspired by the personality of the Queen and the great struggle with Spain, disappeared. The opposition between the invitation of the brilliant world of the Renaissance and the claims of the other world of the Reformation separated men's souls, as it separated their bodies on the battlefield,—and this opposition between worldliness and other worldliness leads us through Milton's earlier poems to *Paradise Lost*.

Some such framework of history as this I should use in passing onward from one masterpiece to another, testing the value of the method always by its usefulness in arousing and sustaining interest in the masterpieces themselves. I am not sure whether any of the authors between Shakspeare and Milton would ordinarily be included in a list of English masterpieces for study, but something of Bacon at least, might be assigned as collateral reading.

In the case of Milton the use of the historical background, which seems to many superfluous in the case of Shakspeare, becomes natural and inevitable. For Milton's life is so interwoven with the fabric of

political history that the method of his biographer in writing a history of the Puritan Revolution is justified, in spite of Lowell's complaint that Milton only occasionally drops into his own biography. And Milton's work is at almost every point determined by the philosophy or the political exigencies of his party. The early poems, it is true, give the last suggestions of the naive union, soon to become impossible, between worldliness and other-worldliness, between the Renaissance, and the Reformation which had become Puritan, *Lycidas* shows the rising tide of political indignation. The *Areopagitica* with its stately, bouyant, swelling prose, marks the moment of highest confidence in the triumph of "the good old cause:" the violent, controversial prose of the later tracts marks the epoch of struggle which Milton won through, not without dust and heat: the eager, moderate but urgent tone of "A Way to Establish a Free Commonwealth," marks the last despairing plea for all that Milton would have died to save. And then, in the later poetry—*Paradise Lost* gives us again the whole world of the Renaissance, now reduced to mere detail illustrative of the Puritan philosophy of the tragedy of the human race; and *Samson Agoniatea* sounds the final defiance of the Philistines that had conquered England at the Restoration, uttered by their old, broken, blind, but dauntless foe.

Indeed, the example of Milton seems to illustrate so obviously and so perfectly the necessity of the historical background that it is almost ungenerous to press it farther.

What the historical background can do for us I have tried to show in the case of Shakspeare—the writer who, of all other in English, seems least to need such reinforcement; and of Milton, who, by virtue of the close connection of his career and art with political events, can scarcely be separated from that background. The value of the specifically *biographical* background in literary study is perhaps best illustrated by lesser men, for example, by Samuel Johnson. We read Johnson to-day—he is a familiar figure in our school-rooms—not because of the worth of what he wrote, but because of his unfailing appeal as a real man, recovered almost in his entire personality, and character, and habits of life, and manners, and foibles, by the industrious genius of his biographer. I believe that it would defy the art of the subtlest of us to interest a class in Johnson's satires after Juvenal, or "The Rambler" essays, as literature, the-thing-in-itself; but I should defy any pupil not to become interested in the life experiences of Samuel Johnson, which these writings in part record, if that experience be presented through the pages of Boswell. For such a biography, creating for us the image and character of the real man, in all his grotesqueness and all his dignity, in his weakness and his faults, and also in his resistance to them and triumph over them, gives, in the end, something of its own impressiveness to the written words, as well as the deeds, of its hero—the

impressiveness, let it be said again, that comes from their actuality as a part of human experience. There is a striking bit of Carlyle that touches this point:

"So, too," he says, "in some Boswell's *Life of Johnson* how indelibly and magically bright does many a little Reality dwell in our remembrance. * * * Foolish enough, how some slight, perhaps mean and even ugly incident, if real and well presented, will fix itself in a susceptible memory, and lie ennobled there: silvered over with the pale cast of thought, with the pathos which belongs only to the Dead. Boswell relates this in itself smallest and poorest of occurrences: 'As we walked along the Strand tonight, arm in arm, a woman of the town accosted us in the usual enticing manner. "No, no, my girl," said Johnson, "it won't do." He, however, did not treat her with harshness, and we talked of the wretched life of such women.' Strange power of reality! Not even this poorest of occurrences, but now after seventy years are come and gone, has a meaning for us. Do but consider that it is *true*, that it did in very deed occur! 'Johnson said, "No, no, my girl, it won't do," and then we talked'—and herewith the wretched one, seen but for the twinkling of an eye, passes on into the utter Darkness."

But the momentary flash of light, revealing the attitude of the great man in the squalor and sordidness of the life about him, his tenderness and patience with it all—his very words sound gentle from the printed page—this light remains to shine upon the dark places and the dull places of his heavy volumes.

Biography has probably done more for Johnson than for any other writer in English, perhaps in any language. It will be said by the scoffers that he needed its services more than any writer of equal fame. But biography does something more than reinforce the claims of second-rate writers to continued attention. The biography of literary men creates for us a kind of minor science, the science of the institution of literature, I should call it,—a sort of literary sociology. And this science is of no small importance in the accounting for and interpretation of literature. Only the greatest literature can be thought of as absolutely spontaneous, unconscious, and inevitable. Most literature has been professional, from the songs of the gleeman chanting the deeds of his patron, to the last "best seller." And the question as to what the profession of letters meant in any age, to any man, must have an important bearing on our view of his work. I do not believe, personally, that any one ever wrote *only* for material reward, but the amount of that reward, and the way in which it was granted, and by whom it was paid, certainly have had an enormous part in determining not only the quantity, but the form, of the literary product. It is the biographies of men of letters that answer these questions, that enable us to trace the history of the profession of literature since the invention

of printing, and follow the steps which mark its growth as an institution, its renaissance, under the social stimulus of the court, the intellectual influence of the universities, and the spiritual excitement of the reformation; the appearance of the bookseller as a literary broker for the reading public; the building of Burbadge's theatre; and thence on past the founding of the newspaper, and the periodical magazine, to the days when literature sold itself into political service for political reward, and was turned out again by Robert Walpole to choose between the parasitism of patronage, and Grub Street misery—a choice which, under some external pressure, was made, and nobly made for English letters, by Samuel Johnson. The chronicle of the splendors and miseries of authors, as related in biography, becomes itself a continued story, a sort of plot, an adjunct to culture-history; and the biographical background is thus capable of supplying, in the study of literature, not merely the sense of reality which gives significance, but that element of continuity on which interest so largely depends.

It is on these grounds that I would finally rest the case for the place of history and biography in the study of literature. I said at the outset that I had never met with a satisfactory definition of literature, the-thing-in-itself. Nevertheless, one can at least analyze the process of literary production into its primary component factors, of which there appear to be three—the man who writes; the subject about which he writes, or his material; and his audience. And corresponding to these three factors there are involved three qualities, without which literature cannot come into being, there must be, on the part of the writer, a certain sense of the reality of his material, at least for himself; the material itself must possess some meaning and importance; and an audience must somehow be brought to take an interest in it. A contemporary writer may indeed overlook the first two qualities in a measure, and proceed directly, by devices known to himself, to strike the note of interest-in his public; but a dead author and an old book are dependent on the biographer and the historian to make them alive and young again. Biography represents the man, gives us proof of his honesty to life as he saw it; history explains the forms under which he saw life, the material with which he dealt. And both biography and history combine to stimulate in the reader that vivifying interest, in the power of which the far and forgot is brought near, the dead is made alive again, and what was lost is found.

REPORT OF THE COMMITTEE ON RECENT BOOKS. AMERICAN HISTORY.

PRINCIPAL WEBSTER COOK, SAGINAW.

In my portion of the report of this committee last year I dealt mainly with reference books for the High School Library that were useful for the students. I want first to call attention to another side of the subject this year. The scholarship of the teachers of history in our secondary schools is a matter of serious importance. Not only is it not as great as it should be, although there are marked exceptions in this respect, but it has not quite the quality that it ought to have. The average college graduate who attempts to teach history has not quite the independence in dealing with the subject that ought to have been developed, has not the proper methods of study nor the intuitive feeling for the right kind of material, such as should be a portion of the equipment of every secondary teacher. For the teacher of history must be a history student. This does not mean that he should be a reader of history, or a reproducer in his classes of the opinions and judgments of others about the subject with which he happens to be dealing, but it does mean that he should study historical facts first hand or as nearly first hand as possible, that he should know something of the laws of evidence, and be able to exercise some judgment as to the authenticity and value of the material which he finds. It is only from this first hand study of the facts of those ancient times his class is learning about that he can become sufficiently imbued with the spirit, or know sufficiently well the characteristics of the life of the period, to give vivid and correct impressions of that life and spirit to his pupils.

The history teacher, in other words, needs exactly the same kind of equipment for his work that the science teacher does for his. A chemistry teacher of my acquaintance is also the chemist of a large factory, analyzing for his firm similar products of other makes, and making new combinations for their own use. For this purpose he must be a sufficient master of his subject to do independent work, and he thus understands as he could not understand in any other way the real significance of his science and of its component facts. A geology teacher in the state has gone out and studied the morainic features of his county, and by this independent first hand study has mapped out the county and has reached his own conclusions as to the character and time of the formations, a piece of work of real scientific value. A botany teacher might study the local flora in the same way, and a zoology teacher the fauna. The point to note in all this is that this actual mastery of the situation, this intimate practical knowledge of the subjects with which they have to deal, makes almost infinitely better

teachers. And the history teacher needs exactly this same kind of knowledge, this first hand acquaintance with facts, not worked up for him ready for use, but in the form in which they exist, this mastery of the situation and power of independent judgment, so that he can deal with his facts freely and confidently as the exigencies of his work demand. The teacher of history who merely reproduces what he finds in the books, with no further thought or effort or understanding, is no more a history teacher than the mere compiler is a historical writer. No teacher, in other words, properly teaches history, who fails to understand the necessity of this kind of work, or who has no taste for this kind of study, or who has no knowledge of the necessary methods to be pursued.

To look after the needs of the teachers is quite as legitimate a purpose in building up a high school library as to provide for the needs of the pupils, and so it becomes an essential part of the library equipment to have on hand, available for the teacher's use, as broad a collection as possible of the source or material of the branch of history to be taught. Each collection should be made in every high school library. As most of the cities have growing public libraries, some of the money now wasted on worthless and ephemeral fiction, and worse than worthless juveniles, might profitably be turned to books of this kind, which would be of permanent value.

This happens to be a very good time to speak of gathering books of this kind, as just at present there is great activity in reprinting, or in hunting out and printing for the first time, material that has not hitherto been easily accessible to students. One important series of this kind is "Original Narratives of Early American History," published by Chas. Scribner's Sons. The series is under the general editorship of Professor J. Franklin Jameson, and is published under the auspices of the American Historical Association, thus insuring careful selection and editing. It is impossible here to speak in any detail of these volumes. The first one deals with the Northmen, Columbus and Cabot, and contains material of the very highest value. Its one great defect from our present point of view is its lack of completeness. A number of things are omitted that ought to have been included. Vol. III. of the series has preceded Vol. II. It is entitled *Early English and French Voyages, Chiefly from Hakluyt*, and contains Narratives of Cartier, Hore, Hawkins, Drake, Gilbert, Barlowe, Lane, White, Brereton, Pring, Waymouth and a "Voyage to Sagadahoc." Purchas and Hakluyt were republished a few years ago, but in limited editions at very high prices. This volume at a reasonable price is therefore welcome, but again it is unfortunate that more is not included. For valuable as these volumes are their lack of completeness makes a serious drawback in their use by students.

Another valuable series which has now reached its 29th volume, is entitled "Early Western Travels," and is published by Arthur H. Clark & Co., of Cleveland. All the volumes of this series have so far been carefully edited, but not all are of equal value for our purposes. Again we cannot deal in detail with even the volumes of recent publication, but one, Vol. XXV. in the series, "The Present State of European Settlements on the Mississippi," by Captain Wm. Pitman (1763-1770) gives us information about the Mississippi posts and settlements from New Orleans to St. Louis at a period when information about them is very hard to find, and is the most valuable of the five or six volumes published in the series this year. Other recent volumes are: Personal Narrative of Travels in Virginia, Maryland, Pennsylvania, Ohio, Indiana and Kentucky, and of a Residence in the Illinois Country, by Elias Pym Fordham (1812-1818), Audubon's Western Journal (1849-1850), an account of a trip from Brazos, Texas, to southern California by the son of the great naturalist, and "Travels in the Great Western Pariries, the Anahuac and Rocky Mountains, and in the Oregon Territory," by Thomas J. Farnham, a narrative valuable in the early history of Oregon.

But the most important of the original documents to which I wish to call attention are two publications by Congress; and first the Journal of the Continental Congress. The Journal is to be published in eleven volumes. The fourth is now announced. The editorial work is satisfactorily done by Worthington C. Ford, and the Journal is supplemented by reports and other documents selected from the papers of the Continental Congress now in the Congressional Library. This is thus the most complete and valuable edition of the Journal ever issued. It can be purchased for \$1 a volume, and I cannot emphasize too strongly the statement that this edition of the Journal should find its way into every high school library.

The second Congressional Publication is a work of scarcely less importance and of even greater interest. In 1815 Congress purchased from Thomas Jefferson a collection of documents for which it paid him nearly \$24,000. In 1826, when Jefferson's library was sold at auction, another collection was purchased for the Congressional library. Among the papers thus obtained were copies of the Court Books and Records of the Virginia Company, covering the period from 1619 to 1623. Ever since that these valuable records and papers have been in the Congressional library, and until now no copy of them has ever been published, although Congress has many times been urged to make proper provision for their publication. But now, in two magnificent volumes, under the title of "Records of the Virginia Company of London," the Court Book, volumes I. and II., is published, and there seems to be some intimation that the other valuable papers of the Virginia Company will also soon be put in print, and constitute a third volume. The preface

to this edition is written by Professor Herbert L. Osgood of Columbia University, and the edition is ably edited by Miss Susan M. Kingsbury of Simmons College. "The value of this series of papers," says Miss Kingsbury, "is threefold—it discloses the organization and activity of the company; it aids in an understanding of the various problems, policies, and conditions of the state under the early Stuarts; and it is of great importance in a study of the entire movement of the earlier and of the later century for exploration, for trade, and especially for colonization." Between the years 1618 and 1624 Virginia changed from a "Colony for exploitation to a colony for settlement." Its land system was developed; its various classes of population were established or begun; and thus the foundations were laid for the future character of the colony. The conditions during this period need more careful study than they have yet received, or, so long as these records and papers remained unpublished, than was really possible for most students. The bringing of these important papers and records within easy reach of all is, therefore, a matter for greatest congratulation.

Two abstracts of the records of the Virginia Company have hitherto been published, one by Neil, which was not very accurate, and a briefer one in the volumes of the Virginia Historical Society, both inadequate for any careful study. The two volumes now published are sold for \$4, and again I have no hesitancy in saying every High School library should obtain them.

Another book, also containing much of value to the teacher, is "Documentary History of Reconstruction," by Walter L. Fleming; published by the Arthur H. Clark Company, Cleveland. "The purpose of this work is to make more accessible to the student and to the general reader some of the original sources relating to the Reconstruction period," is the first sentence of the preface. "The documents presented are principally laws, state and federal, official reports, and political platforms; accounts of northern men and foreigners living or traveling in the South; accounts of southerners, white and black, ex-Confederates and Unionists, Conservatives and Radicals." There are to be two volumes of this collection of documents, but Vol. I. only has come to hand. A detailed criticism is not possible here, but perhaps too much should not be expected from a work of this kind. The selections given give many glimpses of conditions in the South during the reconstruction period; many of the selections are exceedingly interesting and instructive; but they give glimpses only. For a real study much more is necessary than is or could be given in the two volumes to which the selections are limited. While we have not here then a real History of Reconstruction, yet, if we do not mistake its real character, the work is a valuable and instructive one.

Next to these various works in original material, perhaps one or two

monographs on important subjects are worthy of mention. One such work is "The Disputed Presidential Election of 1876," by Paul Leland Haworth, published by Burrows Bros. Co., Cleveland. This is an exceedingly careful and painstaking study of a very complicated affair, is accurate and well written. All the disputed questions are discussed, and the evidence on both sides is fairly stated. It is, in fact, the best account of this serious dispute now available. Nevertheless the work must be used with some care, as Mr. Haworth is a Republican, and in his final conclusion in the discussion of every dispute he uniformly finds the Republicans in the right and the Democrats wrong.

Another work also published by the Burrows Brothers Company is the "Purchase of Florida," by Herbert Bruce Fuller. This essay, the author tells us, was awarded the Eggleston Prize in American History at Yale University in 1904, and from the poverty of historical writings on the subject he says that he "was impressed with the advantages which might occur to students of American history, from an unprejudiced and accurate account of the acquisition of Florida and our early entanglements with the Spanish nation." All will agree with this view of the situation, and we are therefore prepared to welcome a work devoted to the consideration of this neglected phase of our history. And so in Mr. Fuller's pages we find much material not so easily accessible elsewhere, indeed a great deal of such material if we are in position to use it. But unfortunately the book has a serious and almost fatal defect. His treatment is not full enough; he has not given a clear account of the complicated conditions with which he deals. One must already be quite familiar with the whole history of the period to understand the significance of what he finds here, or to be able to follow clearly the progress of the narrative.

In conclusion two general works may perhaps receive passing notice. One is the series of volumes under the head of "The American Nation," edited by Albert Bushnell Hart, and published by Harper & Brothers. The publication of this series has now been progressing for several years. It is not a continuous narrative history, but rather a series of monographs, each by a different author, each treating one phase or period of the history. Volumes VIII. to XIV. have appeared since the last report. It is impossible even to mention the volumes in detail, but the last one brings the history down to 1829. Such a series has some advantages over a work by a single author, and also serious disadvantages. The chief ones for our purpose are that the volumes are very uneven, and the point of view of the successive authors is constantly changing. For teachers the first of these defects is the important one, for high school pupils the second one. Some of the volumes add materially to our insight into the period treated; others add little or nothing

to what had already been written. Nevertheless, taken as a whole, the work is important enough to merit our serious consideration.

The final work to which a word may be given is the completion of Rhodes' "History of the United States from the Compromise of 1850" (Macmillan) by the publication of Vols. VI. and VII. In almost his concluding paragraph, Mr. Rhodes himself says, "I have endeavored throughout this history of the great conflict, to which I have devoted nineteen years of my life, to maintain such standards of research and of judgment as should elicit the utmost of truth." To this modest claim of the author all familiar with the work can more than subscribe. With practically unlimited means at his command, Mr. Rhodes' research has been prodigious, and so his materials, as he says, superabundant. He has given us a readable and reliable history, accurate and impartial. His one great limitation is that he has not penetrated deeply into the great underlying forces at work in our history, and his judgments therefore are not always profound or such as will stand the test of time. But his work, nevertheless, is a valuable and important one, and especially well suited for the reference library in our schools. Mr. Rhodes himself gives a sort of summary of his work at the close of his last volume: "It has covered twenty-seven years of pregnant events; the compromise on slavery devised by great statesmen; its upsetting by an ambitious Northern Senator; the formation of the Republican party; the agitation of slavery; Southern arrogance and aggression; the election of Lincoln; the refusal of the South to abide by the decision of the ballot box; the Civil War; the great work of Lincoln; the abolition of slavery; the defeat of the South; Reconstruction based upon universal Negro Suffrage; the oppression of the South by the North; the final triumph of Southern intelligence and character over the ignorance and corruption that so long had thriven under Northern misconceptions." The importance of the history and of the period which it covers can be shown in no better way than by the mere enumeration of these topics.

Since the Hayes-Tilden campaign in 1876 "South Carolina, Florida, and Louisiana have always given their electoral votes to the democratic candidates for the presidency. With their resumption of home rule, the first step in the process by which intelligence and property gained control of affairs in all of the Southern States that joined the Confederacy, my history fitly ends."

It should be remembered that a report of this kind can not be complete or exhaustive. It is not intended, in the ordinary sense of the word, to be a review of books, but rather to call attention to some at least of the important books of the year along the lines of American history. Moreover its point of view is not that of the reviewer, but always that of the importance of these books in connection with the work of the secondary schools.

REPORT OF THE COMMITTEE ON RECENT PUBLICATIONS
OF INTEREST TO TEACHERS OF HISTORY.

PROFESSOR A. L. CROSS, UNIVERSITY OF MICHIGAN.

The chairman of the Committee of the History Section of the Michigan School Master's Club appointed to report on recent publications in our field, of interest to teachers, has asked me to deal with the work in English and Ancient History and it has seemed to me best, in the few moments allotted me, to confine myself to two co-operative works in English History, both of which began to appear a couple of years ago and both of which are still in process of publication.

One is called "A History of England," and is published in London by Methuen & Co., under the general editorship of Prof. Charles Oman, of Oxford, who also contributes to the rival series, and indeed, writes in everything historical from the History of Greece to the Peninsular War. The work is handled in this country by the Putnams. The other series, less modest in its pretensions, announces itself as "The Political History of England:" the publishers are Longmans Green & Co., while the general editors are the Rev. William Hunt and Mr. Reginald Lane Poole. The former gentleman is already known as co-editor of a valuable "History of the English Church," and for his numerous historical articles in the "Dictionary of National Biography." Mr. Poole is editor of the "English Historical Review." Both series aim to present in readable form the results of recent investigations, to supply authoritative up-to-date treatises that shall stand between the manual or sketch on the one hand, and the multitude of minute monographs on the other. Although co-operative in character, each is made up of a number of volumes, every individual one of which is by a single hand.

But while the Oman or Methuen Series seeks to cover the period from the beginning up to 1815 in six volumes, the Hunt and Poole or Longmans Series requires twelve volumes to carry the story up to 1901. For the teacher and that somewhat nebulous and elusive figure, the general reader, the Oman Series presents some decided advantages. It is only half as long and only half as expensive—the list price in this country is \$3.00 a volume or \$18.00 for the set. Moreover, the general plan of presentation appeals more to every one except those uncommonly constituted individuals whose type of mind enables them to follow with interest and enjoyment detailed and complicated accounts of political and military events. In the shorter series these events are sketched in broader outline, more lightly touched upon. By means of condensation and exclusion more space is given to the exposition and discussion of religions, intellectual, industrial and social conditions and tendencies. For instance, Chapters VI and XIX, of H. W. C. Davis's "England under

the Normans and Angevins" and Chapters I and II in Trevelyan's "England under the Stuart's" are masterly presentations of the un-political phases of the subject. George Macaulay Trevelyan, by the way, is a grandnephew of Lord Macaulay, and resembles him in grace of style. He has distinguished himself outside the historical field by writing a work on the poetry and philosophy of Mr. George Meredith, and is barely turned thirty. The only other volume which has yet appeared, "England under the Tudors," by Mr. A. D. Innes is not equal in merit to its predecessors or to the companion volume in the rival series which covers part of the same ground. His treatment of the social and industrial conditions is relatively scanty, his grasp in foreign affairs under Henry VIII is not always firm, and some errors of detail have been noticed. Yet the volume, as a whole, is a contribution of some value. If I may generalize from the three works which it has been possible to examine up to this time, the main short-coming of this series is that the political narrative tends to become at times rather a commentary on history than history itself. This tendency is most noticeable in Trevelyan's able book and is one that Carlyle shrewdly warned Froude against when he began to write his partisan but wonderful history years ago. The fault, however, if not too exaggerated—you have doubtless noticed evidences of it in Green's "Short History"—is less objectionable than overcrowding with details.

Coming now to the Longmans Series in which we have seven of the projected volumes upon which to ground an opinion we find three at least to which almost unqualified praise can be accorded. Thomas Hodgkin, while he passes gracefully over knotty and disputed points, has written a book of great charm, weaving into the narrative vivid and picturesque bits from the sources with a skill in which he is a past master. Thomas Tout narrates the course of events from 1216--1377 in a straight forward fashion, with a grip of the material and a mastery of detail that marks him as an authority. Mr. H. A. L. Fisher's account of the reign of Henry VII and Henry VIII, although at times over-loaded with information and over-rich in imagery and illustrative quotation, is not only sound and scholarly, but marks the highest point of literary distinction which, with the possible exception of Trevelyan's "England under the Stuarts," has yet been reached in either series. Prof. G. B. Adams, of Yale, is the only American contributor. His book has decided merits and decided faults. It is exact and learned, profound, and suggestive, particularly in the chapter on the Magna Charta where he brings out the essentially feudal character of that document. But his style is clumsy and "pedestrian," and he interprets too rigidly the requirement of the series that primary attention is to be paid to political narrative. This limitation is also evident in the volumes of Mr. Oman, Rev. William Hunt, and the late Hon. George Broderick, dealing with the

periods 1377-1485; 1760-1801, and 1801-1837, respectively. Mr. Oman writes a fascinating style, but is not always accurate in details; in fact, a recent writer in the *Atheneum* has pointed out an unconscionable number of small slips. One characteristic of the Rev. Mr. Hunt's book will be of interest to you. He presents the old fashioned English views of the causes of the American Revolution.

Both series contain selected bibliographies of the sources and literature of their respective periods, notably valuable from the fact that the authors have wisely refrained from heaping together exhaustive lists or bare titles and have given brief but painted characterizations of the works cited.

In summing up this rather hasty and jejune survey of two noteworthy undertakings, I should say that the six volume series published by Methuen (or Putnam) would be preferable for the teachers because of its greater comprehensiveness, brevity, and cheapness, and that, if we cared to purchase any separate volumes of the Longmans Series, I should recommend Hodgkins, Fisher, and possibly Tout. Judged by the standard of his former work, Pollard's forthcoming volume on the years from 1547-1600 promises much.

DSEIRABLE RELATIONS BETWEEN ENGLISH AND HIS-
TORY IN THE SCHOOLS. IN THE LIGHT OF LOCAL
PLANS AND EXPERIENCE. THE ENGLISH
COURSE IN THE GRAND RAPIDS
HIGH SCHOOL.

MRS. CORNELIA S. HULST, GRAND RAPIDS.

Pupils come to the High School at the time when they are just putting childish ways of thinking aside, and it is our privilege to help them widen their horizon and enter into the life of the larger worlds, of the distant and the past, to travel in the 'realms of gold' and see its "goodly states" which kingly spirits rule. Our immediate purpose in teaching literature is to introduce them to certain choice spirits that it will be their privilege to know, to store them with knowledge that will be useful, and to cultivate in them a sense of fit and beautiful forms of expression. This study of both the form and the content of literature will find further purpose in the refined pleasure with which it enriches their later life and in the power of their expression which will reveal itself when occasion arrives. The course in literature is fundamental to that in composition, for the cultivated sense of what is fit in language and idea must precede the creation of what is fit, and beautiful. Of

course this does not imply a method of teaching composition by imitating the masters or of assigning subjects for composition on the masterpieces only, but merely that a cultivated sense of words, sentences, and relations of parts in the whole, as well as of ideas, is prerequisite to good creative work. This paper will be limited to a consideration of this fundamental work of presenting the literature and securing the ideas, not to the connection with composition.

It is evident at a glance that we shall not get the best result by taking an assortment of masterpieces and inserting them haphazard into a course, or even by shifting them empirically from place to place, for by that process we shall have a course that is no organic whole, but a mere conglomerate. A careful consideration of what needs are to be met and what resources we have to utilize and a rational suiting of our means to our ends will secure advantages that we cannot hope for by any fortuitous concatenation of circumstances. Let us aim, then, not only to include all of the List, but to arrange the pieces with a system which will secure the best results in the study of form and of content.

In our Grand Rapids course we try to teach from internal structure, style, or rhetoric, to use the technical word, directly from the literature studied, and have arranged our work so that during the first two years the selections for reading are chosen with a view to their presenting with comparative completeness the different literary forms. We dwell upon the various features as we meet them, keep notes from day to day, and sum up the work at intervals and at the end of the semester in discussion and with definitions and examples of the varieties to be firmly fixed in memory. In this way we take the folk-tale, ballad and epic in 9-1; the drama in 9-2; other kinds of poetry, with special attention to versification and figures in 10-1, and the novel and other prose literature, with special attention to internal structure, plot, etc., in 10-2. In later grades we comment upon the rhetoric of pieces studied, but their selection is not with a view to their rhetoric. In 9th and 10th grade work we try to establish the habit of noticing diction, sentence forms, structure of the work as a whole and peculiarities of style. Grammar is reviewed in 9th grade. In 9th grade work narrative and description are made prominent; in 10th, exposition and argument.

But though rhetoric is the determining factor in the selection of pieces of literature studied in the 9th and 10th grades, they are chosen with other points also in view, one of which is their content. The folk-tale and the Odyssey are taught synchronously with Greek History; the drama of Julius Caesar is taught synchronously with Roman History; the selections made to teach poetry in 10-1 are largely poems representing Mediaeval conditions and ideas, and also the prose of 10-2 is largely such as presents the same period. The history and the literature of these grades, then, supplement each other, and together give a deep-

ened sense of the past, its ideals and institutions, which are fundamental to an understanding of later reading and of the modern world. This is the more necessary because few courses in history are required and many of the pupils come to the higher grades with no knowledge of Mediaeval History. If no corresponding sacrifice is made so as to teach the history and literature together in this way, it is good economy to arrange them so. And this arrangement of the work is not only economical of effort in teaching the past, while at the same time it presents the material of rhetoric, but is also, I believe, philosophically and psychologically sound. It is the order in which Nature developed literature, and so must have had a sufficient reason for every step in its evolution; and it offers to the student, who in these years is in his early adolescence, the distant and the heroic which his nature craves. The best of chivalry is here presented to him at the time when he is most impressionable and receptive, and the past is held before him daily, which as an American with his face to the future he would be likely to forget. A simple emigration of our ancestors to America should not cut us Americans from our heritage of heroic legend and the dawn of time. Rather, by our cosmopolitan ancestry we should appropriate all that is good from any source. Since it is our natural tendency to forget the past, American education should make a distinct effort to counteract the tendency, and so extend to completion the good work which Ticknor and Longfellow began at Harvard.

In the 9th and 10th grades the main piece studied in the semester is supplemented by minor pieces of its type, and these, prepared under a system of controlled individual or home reading, and presented to the class as topics, or oral composition, add much to the knowledge and interest. So in the 9th grade the teachers draw up a list of famous folk-tales, assign one to each pupil as a special topic, and encourage reading from the list from the semester, which includes, perhaps, *Cinderella*, (English and German version); *Beauty and the Beast*, and *Cupid and Psyche*; *The Sleeping Beauty*, and the incident of Siegfried awakening Brunhild; some of *Aesop's Fables*; some of Brer Rabbit's adventures; adventures of Renard the Fox; fairy tales from Grimm, Anderson and the Arabian Knights; and the like. These give excellent occasion for discussion and for first exercises in oral and written narrative and description, and also an excellent body of material for the teacher to comment upon in presenting the beginnings of literature, the changes which it undergoes in oral transmission, and in neighboring races, into fairy tale, myth, epic, animal epic, saga, etc. A few ballads added to the list help to make an approach to Homer's *Odyssey*. If the class know the stories well (but we find that the body of the class do not know them) still the point of view is new, and interesting, and should lead to the discovery of new depths of meaning in fairy tales and myths,

which gave children and child-races food for thought, and are allegorical (and so true) for later ages. Here it should strike the pupils that stories are not only amusing, but that even when they are not literally true they have value as presenting a character or a problem in life, exercising the imagination, calling for moral judgments, awakening sympathies, and introducing readers to a wider life than that which they can enter in person.

The *Odyssey* is especially valuable and delightful. It should be begun in the later part of the semester, just after the History teachers have finished their work on prehistoric Greece and the Greek religion, so that the initial difficulties will be minimized and the *Odyssey* will come to seem to the pupils, as it is, not only a literary piece of narrative and description presenting one of the greatest of heaven-descended, heaven-protected heroes amid soul-shaking dangers, whirlwinds and whirlpools and hostile gods, but also a most interesting source-history presenting living pictures of palaces, social customs, and religious life of the far past. Here the mythology of Greece seems a religion, the guide to life which the Greeks had, not the same thing which is dead in reference books—dead and foolish. And here a comparison of the religion of Homer's pirate chiefs with that of their Hebrew neighbors will give judgments of *better* and *worse*, that will be worth while to the young readers. If the reading of the *Odyssey* did not end in making these comparisons, condemning what is evil and appreciating the more what is good, I should quite agree with the excellent secular teacher and the Catholic Sisters who object that the reading of the *Odyssey* is bad for children because it does not give them the right ideals.

In the 9-2 work on the drama and *Julius Caesar* it would be a good thing to begin the Literature after the History classes have finished their work on the Greek and the Roman theatres and plays, and to arrange topic work and oral composition on historical and biographical subjects bearing upon the main work of the semester, as, early religious and secular plays, early theatres, and the *Lives* in North's translation of Plutarch. Good opportunity is here given for History teachers and English teachers to assist each other, and it should be made clear to the pupils that the theatre is an institution which grew. A good exercise will be narrative and descriptive essays in which the pupils describe the presentation of plays in Ancient Greece, in Mediaeval Europe, and in Elizabethan England, imagining themselves spectators or actors.

In the 10-1 grade, where verseforms are the special point of our Rhetoric study, *The Idylls of the King* and *The Vision of Sir Launfal* are among the pieces studied, and the topics for oral composition include, in 10-1 and 10-2, any Mediaeval poetry or prose that is obtainable and suitable to the age of the pupils, as, some of the *Robin Hood Ballads* and *St. George Ballads*; some of the *Tales of the Wayside Inn*, e. g., *King Robert of Sicily*, *The Bell of Atri*, and *King Olaf*; other Saga

Literature and tales from Norse Mythology; *Charlemagne and Roland*; the *Nibelungen Leid*; *The Cid*; *Robert the Devil*; *The Pied Piper*; *Sir Guy of Warwick*; the *Seven Champions of Christendom*; *Don Quixote*, etc., tales which illustrate both the heyday and the decline of chivalry, some with sound ideals, and some with unsound and extravagant. In 10-2 *The Legend of Sleepy Hollow* and *Ivanhoe* are excellent for study as giving also the spirit of mediaeval times. In our school we are trying this tentatively, and it will be perhaps several years before we have lists tested by experience. In these grades a good opportunity is offered to widen the horizon of the pupils by consciously choosing for them selections from the literature of all Europe rather than from one nation. This is the more desirable here because in the later grades the selections are from English and American literature.

In a large sense all literature is a part of history, source material, and the content of literature is not fully grasped until it is comprehended as effect of what preceded, partial cause of what followed, and related to the other pieces of its school and time. This is an idea that will hardly occur to a pupil who studies his masterpieces in the haphazard order, but it is easily grasped if he reads them in chronological order and is led to make comparisons between the successive schools, or groups, as he proceeds. It is to establish a habit of orderly progression, to give an opportunity to make comparisons between the groups as we progress, (and so establish the habit of comparison), and to take a final view of the whole, that we have established the chronological order of study for the masterpieces in 11th and 12th grades. Unconsciously, if not asked to do so consciously, the pupil unifies his work, grasps the scheme of its evolution, and acquires a sense of the time of the various authors studied. To help in accomplishing this desirable result a textbook is useful and saves the teacher and the class much valuable time if utilized as a reference book, not abused, as textbooks formerly were. Even if the required list is narrow and stringent this system is advantageous. It is elastic, and more or fewer masterpieces can be inserted according to the time to be taken and the ability of the class. Easy pieces can be taken in grades 9-10 for rhetoric; hard, later in the course.

Beginning 11-1 work with early English literature, it happens that this semester adds still more to the Mediaeval pieces read in the 10th grade, including, as it does, Chaucer's *Prologue*, Spenser's *Faerie Queene*, and Shakespeare's *Macbeth* for study; and ballads, metrical and prose romances, church legends, and secular and religious plays for individual reading and topic recitation. The list for the semester includes translations of *Beowulf* and *Elene*, some of the *Robin Hood Ballads*, and various plays, as a Greek tragedy, a miracle play, a morality play, *Ralph Roister Doister*, *Gorbodoc*, *Doctor Faustus*, and plays of Shakespeare.

In 11-2 Milton's shorter poems, Addison's *Essays*, and Burke's *Speech*

on *Conciliation* are taken for study; and for individual reading and topic recitation, a list including Bacon's *Essays*, *Pilgrim's Progress*, *Robinson Crusoe*, *Gulliver's Travels*, *Rasselas the Vicar of Wakefield*, *The Rivals*, *Quentin Durward*, and other 18th century books. *Paradise Lost*, assigned one book to each pupil and the books told in succession to the class, is very successful, though it is not successful for class study.

With constant effort to keep this study alive, the teacher can make the class see the political and moral progress of the centuries studied. From the ridicule of the corrupt churchmen by Chaucer in the Prologue to the Puritan awakening in Milton there is a religious evolution, and from the Peasant's Rebellion of Wat Tyler and John Ball to the wars in the time of Cromwell and the Stuarts there is a political evolution, which prepare the way for the American and the French Revolutions. Burke comes fitly after Milton and the Stuarts, and could hardly be seen in right perspective if studied before. The pupil must have a sense of ages of preparation for these grand events, and it would be well if he could have a sense of the still longer and stronger and more successful continental struggles for reformation and political liberty in the Italian Republics, in Switzerland and in the United States of the Netherlands. It is such study that must make him an appreciative reader of masterpieces, but even more important, an appreciative and patriotic American citizen.

In the 12-1 grade the 19th century masterpieces of the required list are studied, supplemented by other pieces from Wordsworth, Coleridge, Keats, and Shelley; Dickens, Thackeray, and George Eliot, Macaulay, Carlyle, and Ruskin; Tennyson and Browning. The new spirit which manifested itself in the romantic movement in literature, in the French and other revolutions in politics, and in other reform and humanitarian movements becomes strikingly evident as the work progresses. With a generous latitude in reading lists and topics to accommodate individual needs and likes, a wide range of reading opens to the student, and he hears about new subjects, which he will later give more thought. The list of novels for this semester includes *Silas Marner*, or others by George Eliot; *A Tale of Two Cities* or others by Dickens; *Vanity Fair* or others by Thackeray; *The Last Days of Pompeii*; *Jane Eyre*; *Hyppatia*; *Pride and Prejudice*; *Evelina*; or almost any other reputable novel for which a request is made. Pupils who are going to college read and report on books recommended for college entrance, but others may choose equivalents. We prefer to read Macaulay's *Essay on Milton* rather than the *Essays on Addison* and *Johnson* because it shows Macaulay's interest in reform movements and explains his own election to Parliament and subsequent efforts for the Reform Bill of 1832, and also because it necessitates a review of Milton, the more important writer, and at the same time deepens the impression of the political struggle against the Stuarts

in England, and the religious struggle which planted New England with Puritans.

In the 12-2 grade American masterpieces are studied and add the keystone to the arch of our course. The pupils like this semester better than any other, perhaps because they come to it maturer in years and better prepared by previous training to appreciate and compare, and perhaps also because they find in American literature to a larger extent than in other the American ideals which satisfy their modern and American spirit. *The Appeal to Arms*, the *Declaration of Independence* and the *Farewell Address* seem most beautiful when they are compared with the lower morality and policy of Burke's *Speech on Conciliation*, which does not take its stand on right, but on interest and policy, which gives way to colonial demands only so far as to avoid losses, and proposes to keep every advantage until forced under threat of war to give way. In general, American literature is hard and complex, as compared, for instance, with Mediaeval, as the *Prologue* and the *Faerie Queene*. We tried the *House of Seven Gables* in the 10th grade (some schools read it in the 9th) but now take it in the 12th because we found that pupils had not understood it and were coming to the 12th grade with a positive prejudice against Hawthorne. In the 12th grade pupils realize that it is one of the finest things they have in the course. With a very flexible reading list of twenty-five of the best novelists, the pupils interest each other in a wide range of literature. To stimulate an interest in history we have some of the best histories and memoirs on the general list, as, Grant's *Personal Memoirs*, Irving's *Columbus* and *Washington*, Prescott's *Conquest of Penn*, Motley's *Rise of the Dutch Republic*, and Parkman's *Conspiracy of Pontiac and Indian War after the Conquest of Canada*. Most of our pupils read more than is required of them, and some of them have to be recommended to moderate their zeal. A few still have to be urged to do their work. All of them go out with a list which their friends have read and liked and which they intend to read next. The topic list for this semester includes books chosen to illustrate the scope of the novel as well as to include the foremost modern writers. It has novels of incident, of character, of manners, of no purpose beyond amusement, and of serious and moral purpose, as, social studies, historical novels, novels of local life, novels of international life, animal stories, bad boy stories, mining camp stories, slum stories, patriotic stories, etc. The list is variable, but includes *Elsie Venner*, *Marjorie Daw*, *The Rise of Silas Lapham*, *Daisy Miller*, *The Prophet of the Great Smoky Mountains*, *Little Lord Fauntleroy*, *The Birds' Christmas Carol*, *The Heathen Chinee*, *The Virginian*, *Ben Hur*, *The Pit*, *Hugh Wynne*, *The Crisis*, *Ramona*, *Main Travelled Roads*, *New England Nun*, *Colonel Carter of Cartersville*, *The Call of the Wild*, *The Blazed Trail*, etc. Each pupil reads the one assigned to him, and may read as many more as he wishes.

This list is permitted only after the right amount of reading on the "Classics" of American literature has been done.

I am certain that with this view of the whole field of literature, secured incidentally while we are reading particular pieces, our pupils go out to colleges and universities the better able to choose intelligently among the courses offered, and into life with something of a method of reading, a list to read from, a background for reading, and an impulse to read.

THE ATTEMPT AT CORRELATION OF HISTORY AND ENGLISH COURSES IN THE DETROIT HOME AND DAY SCHOOL. 1906-'07.

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In stating the plan of work of a school at any given time it is well to bear emphasis upon the point that it is a plan for a given time. In the typewritten outline of the courses in History and English in the Detroit Home and Day School which I have prepared to facilitate the discussion of the subject of correlation, it is necessary to note that the plan is for the year 1906-'07. That there will always be an attempt at correlation is certain; that the attempt will follow the lines suggested in that outline, is also certain; that the details of work, the books studied in history and English will vary from year to year is absolutely certain. There can be no growth where plans become fixed; therefore our outlines are always typewritten to admit of change.

In this paper I hope to give an idea of the nature and scope of these plans and to show how far correlation in these two courses has proved valuable and where the danger of too much insistence upon it is manifest in English at least.

In times, in this school, a coherent and closely related course shall have been worked out from first primary to last secondary year; at present it is perfected only for the secondary period.

To speak first of where correlation has proved valuable. For clearness, the general arrangement of grades, differing slightly from that of the public schools, should be stated. The school is divided into three departments, primary, intermediate and academic. The primary course covers four years; the intermediate four years; and the academic five years. Thus we have one extra year for the secondary work. This, naturally, prevents crowding. The subjects studied are divided into units, three recitations a week for a year being regarded as a unit in English, history, science or mathematics. To limit this discussion, I shall confine my attention to the academic department alone; that is,

to the last five years of school work before college preparation is completed, and, in those five years to English and history, required of every student.

The one never-to-be-forgotten aim in every school should be correlation. The tendency of young minds is to see ideas unrelated and the effort to overcome this tendency to keep ideas in watertight compartments should be unceasing. With this aim in mind, this school has been divided into departments. As President Eliot considers the extension downward of departmental teaching one of the fundamentals for the improvement of education up to the age of eighteen, that step needs no justification. With a head of each department in charge of the work of that department, bearing the idea of correlation constantly in mind, conferring constantly with the heads of other departments to that end, holding frequent meetings of the teachers in her department for discussion and suggestion, much can be accomplished. Not only do history and English come into closer relation under such an arrangement, but science, and Latin join the channel of thought which finds expression in every English exercise. If time were not limited, it would be interesting to note here a few of the subjects voluntarily selected for composition by students this year in third and fourth academic grades. A girl in the third academic asked to plot a short story, chose for subject, an adventure in the life of a German boy in the first century, B. C., making use of what she had learned in history and Latin classes about the Druids and the primitive Germanic customs. Girls in the fourth academic, asked to write twenty lines of blank verse to strengthen their knowledge of the metre of Shakspeare, wrote descriptions of the Parthenon pediments, Joan of Arc, King Canute, or Henry VIII. of England. All the subjects were chosen, not assigned, showing the best of all correlation, that which comes from the student.

Such instinctive correlation, however, can never come unless the whole teaching force of the school will confer and collaborate to keep the idea uppermost. To speak only of the subjects under discussion in this paper, if English is dead without history, so is history dead without English, "nor soul helps flesh, now, more than flesh helps soul." From the English point of view, I can say that students without historical background are at a loss in following the development of English expression as shown in the history of our literature.

Now to explain the type-written tables which I have placed in your hands. In the first year of the academic department, corresponding to the ninth year of the public schools, Greek history is commenced. In that year it is completed and Roman history begun and carried down to 27 B. C. The children are trained gradually in the use of reference books and outline maps and tables, taught to make connections and see for themselves relation between cause and result. The art of Greece is

dwelt upon, a study is made of the photographs and drawings in the school collection, stereopticon views are presented, and the class goes to the art museum to study the casts. By these means an appeal is made to the interest which never fails to waken a response. So the way is prepared for the more exacting later courses and the historic sense is developed.

To facilitate the work of the history department at this point and to lay the foundations for later work in English poetry where the questions of allusions is often vexed and where a student, ignorant of the classics and their influence upon English literature, is at sea, English, the hand-maid of history, steps forward. With Gayley's *Classic Myths* as a basis, the principal Greek myths are developed, as often as possible where they illustrate the current work in history, as you will see by reference to the typewritten outlines. In this way, each child gains some idea of the myths associated with the founding of the Greek states, the oracles, and the national games. This also prepares the way for the constructive English work of the year, the study of the *Iliad* and *Odyssey* in translation. The *Iliad* is studied only in part, the *Odyssey* as a whole. Note books are kept and blue prints mounted to show the embodiment of these stories in art. The girls note for themselves the story, the similes, and, especially, the fund of information about Greek life in the Homeric age. The papers which they write on the social manners and customs, the position of women, or the religion have many a fresh touch of original observation. The beauty of the work is that each child makes her own selection of passages to illustrate these points and draws her own conclusions. Incidentally, much stress is laid upon the foundation of the epic, its style, and the nature of epic material; this bears fruit later in the study of the development of the ballad or the romance.

Roman history to 27 B. C., with all its striking incidents, finds illustration in Macaulay's lays in the Regal Period and the early republic; in *Coriolanus* in the Republic; and in *Julius Caesar* and Plutarch in the revolution. The perennial freshness of *Julius Caesar* strikes one with each new class. They are always enthusiastic in their study of it, heated in their championship of favorite characters. When a girl after finishing her last year's work in school is questioned about Shakespeare, it is often that play is freshest in her mind. To me that is but one added proof that, coming as she does, from a careful study of the history of the period, Shakespeare's great work makes an indelible impression. Comparison of two who have studied the play, one in connection with history and one without, reveals the fact that it is the former who remembers and thinks. As Felix Adler said in a recent address to college women in Detroit, one of the greatest gifts of education is a trained historic memory. The reading of *Plutarch* is also of assistance. The lives of Caesar and Brutus are read very carefully and examined as the

source of Shakespeare's play. This is of aid in developing the historic sense and the power to discriminate in the use of material.

In the tenth grade, our second academic, the history course covers ancient and mediaeval history from 27 B. C. to 1328 A. D. This, it must be admitted, is a difficult and most important period. On the acquisition of a right idea of the working of "great (history's) germens" depends all future work in that subject. The break-up of the Roman Empire, the growth of Western Europe, are pregnant with meaning. The greatest care is taken by the history department to show the state of culture, the growth of feudalism, the crusades. Emphasis is laid upon the history of the Christian Church in its early stages and in the great "religious centruy." An effort is made to show the light in the so-called dark ages and to awaken the historic imagination.

It is just at this point that, in the nature of the case, correlation with English is most difficult. The scarcity of books in English of this period, suitable for class study by children, is apparent. But, to my mind, this is no cause for discouragement. Correlation is of three kinds: anticipatory, coincident, and retrospective. Occasionally the history or the English must anticipate the work of the other course, being as glad to take as to give; occasionally it will, as in the case of *Julius Caesar* or later of Milton, have all the joy of direct reaction; occasionally it must look back to the past work in the other class and try to recall it.

Just here, as you see, the English course introduces a digression in the biography and poetry of Scott. Always there is the necessity of bearing emphasis on the study of poetry for its own sake, independent of any idea of correlation. That is done here by the study of Scott and throughout the school by reading Palgrave's *Golden Treasury*. The ethical value of the biography of Scott is great and pupils never fail to respond. They are interested in him as a man and that interest extends to his country, his homes, his family, even to his dogs, with all of which they become familiar through stereopticon views. His journeys into the country in search of ballad versions for his *Border Minstrelsy* give the opening for the study of the ballad. This is most valuable. In the ballad is embodied race experience, the history of the epic in the making, the growth of outlawry, the popular feeling against oppression in church and state, all of which the children note with interest. In matter they have history; in manner they have poetry. Scott's novels give legitimate outlet to the love of a story, most noticeable at this stage and necessary to guide, if children are to be saved wasting their time on the trash that is pouring from the press. With the study of *Ivanhoe*, the *Talisman*, or *Quentin Durward*, the direct correlation with history is resumed. These stories are used to show power in narration and to illustrate the spirit of chivalry and the crusades.

Correlation is continued in the period of the crusades and of chivalry

by reading in class the *Idylls of the King*, a never-failing well-spring of delight. The early empire finds illustration in selections from *Acts* and *Revelations*. The Teutonic invasions gain light from class reading of Needler's translation of the *Nibelungenlied* and from *Beowulf*. The latter is examined in the same manner as the *Illiad* and *Odyssey* the year previous, though in less detail. Mediaeval life in church and state was further illustrated last year by selections from the *Divine Comedy* and by *Romeo and Juliet*. The work on the *Divine Comedy* was done altogether in class by reading aloud selections from the translations of Longfellow and Norton with full comment by the teacher. On the value of this work at this point judgment is reserved as is indicated by question marks on the outline. A longer test must be made before a decision can be reached.

Here it may be well to speak of the supplementary reading which is a feature of the school from primary through academic grades. Each girl is furnished with a list of books at the beginning of each school year in the primary department of each term later. These books are chosen with the especial object of stimulating interest in reading and supplementing the work in history and English.

The third academic takes up modern history from 1328-1901 with especial reference to France. The Renaissance is the absorbing interest in the first part of the year, the French Revolution later.

At this point the courses diverge somewhat because it is hoped that when they converge later, in the fourth academic, they may bring much fresh material to enrich their common ground. The regular history of English literature is made the basis of the English work from now on. *Beowulf* is reviewed to fit with the Anglo-Saxon period; Malory and Tennyson give ample illustration of the development of the romance. Though it might seem difficult, and perhaps inexact, to attempt to read Chaucer with so young a class, it is always the greatest success. The youth in him appeals to the young mind, the background of pictures of society enriches the whole conception of mediaeval life. Constant reference is made to the history course of the past and and of the current year to make the work vivid. The results are noted the year following in history in intelligent comprehension of the fourteenth century. Later in this year, with Spenser, the English work becomes for first time anticipatory. An effort is made to suggest the spirit of the English Renaissance and to show the embodiment in Spenser of the healthy spirit of Elizabethan England. This always proves helpful to the class when they come to the corresponding period in English history.

In supplementary reading this year the reports are given orally and the class gains much in feeling for the period through informal discussion of the Renaissance in *The Cloister and the Hearth* or *Romola*; the

Reformation in the *Schonberg Cotta Family*; or the crusades in *Via Crusis* or the *Talisman*.

The time anticipated by the English department is the year when the history course is on England. That is in the fourth academic, the period of real correlation, the place for retrospect and prospect. The first third of the year is the history from the earliest English origins to the Tudors. The difficulties of the study of the origin of English institutions need no comment before this body. Now the *Beowulf*, read the year previous, is a help for the Anglo-Saxon history; the Chaucer and the ballads for the thirteenth century; the *Idylls of the King* and Malory for the fifteenth.

At the beginning of this year, the English classes commence the study of the English drama. The stereopticon talks on mediaeval London and the origin of the drama give color to the background; the maps drawn from Aggas' give the topography of Elizabethan London. When Shakespeare is reached, the plays afford the best of all pictures of contemporary life. One play is studied from each of the four periods of Shakespeare's development. The historical play is either *in* *King John* or *Richard II*. In addition to careful study of four plays, each member of the class this year read four others at home. Oral reports were made on this outside reading and so interest was stimulated. Many girls read all the plays during the year.

Just after the middle of the year the two courses are on exactly the same period, the Stuarts and Milton. Last year was the first year when the course as it now stands was adjusted to meet this end and the experience of studying Milton with the girls intensely interested in the great rebellion is never to be forgotten. This has been equalled for me in my ten years of teaching only by the work on *Julius Caesar* with classes who were studying Roman history and reading the *Commentaries*. It is pleasant to anticipate for the history department, also pleasant to gather where it has strewn, but it is joy to work with it side by side.

While, at their necessarily slow pace, the English classes continue and finish the study of Milton, the history goes on to the Restoration and the eighteenth century. Following, the English completes the work for the year with the first book of *Pilgrim's Progress* and selections from Dryden and the minor poets.

Comus, *Paradise Lost*, Milton's biography, and *Pilgrim's Progress* are studied carefully for the characteristics of Puritanism. This has proved most helpful to the history department. It seems difficult to an immature mind, especially a mind trained in these lax days when the Bible is practically a sealed book, to form any idea of Puritanism. The greatest effort is made to help the student to see for herself the difference between Milton's Puritanism and Prynne's—or Bunyan's for that matter.

The *Fæia Queene* is recrlled as an example of a nearlier phase and much Bible reading is required.

A digression here for the purpose of showing the attitude toward Bible study may be pardoned. The reading lists suggest the Bible; the Bible reading forms the basis for morning exercises; no class discussion is complete without reference to it; the history of the early church is illustrated by *Acts*, the *Epistles* and *Revelation*. The last part of the fourth academic history work, the eighteenth and nineteenth centuries, forms the basis for English in the twelfth grade, fith academic. A full list of the books read and studied this year is given on the printed outline in your hands. It is the purpose in future, if possible, to put the English work on the eighteenth century in the last part of the eleventh grade, so leaving one term of the twelfth grade free for a review of American literature, correlating with the American history. At present, the only direct correlation in this year is on Burke's *Conciliation*. In connection with that, oral debates on historical subjects or current topics and argumentative times give life.

So far on the value of correlation of history and English. There is only one danger—from the English point of view at least—and that is the temptation to take up for study only literature which correlates. That sometimes means studying a work of less value because of its relation to history instead of one of greater value because of its beauty solely. That would be a mistake. Practice and careful thought on the part of the planner of the course will leave opportunity for freedom in this direction. Regular progress toward a definite goal is made all the more desirable in all eyes by an occasional side excursion for the mere joy of wandering.

Such a brief statement of our plans for the correlation of history and English is of course inadequate. Nothing has been said of the composition, one third of the English work, in which the threads of all studies are gatherel up. Conference with all teachers to find subjects for assigned themes develops unity and we all need unity if our students are to escape the fate of Dirce. Secondary work should admit no narrow-minded specialists. Though no teacher is worthy of the name who is not immersed in his subject, he is only half educated who can see in education only his own department. We must have unity of aim if there is to be unity of total impression. Such unity can be realized so far as the pupil is concerned only if the teachers co-operate for each others' good instead of losing sight of the main object in jealousy of other departments. Paul Crozet in his recent treatise on French secondary education, *Maitres et Parents*, says: "Who can expect the parents of the children to co-operate with the teachers if even the teachers in the same school work independently of each other?" There is the secret of correlation—unity of aim on the part of all teachers in the school,

especially of the teachers in these two closely related subjects. To what "far-off, divine" time can we look forward with greater hope than to the time when we shall be able to lead those entrusted to our care to read and meditate in the light of our race's experience upon the best literature our race has produced?

SOME PROBLEMS IN TEACHING GERMAN GRAMMAR.

MISS NELLIE M. HAMILTON, ANN ARBOR.

Apologies are not considered good form, so I must offer none for speaking to you on this subject this afternoon. Yet a little explanation may do no harm. Since this is the first year I have been able to devote my entire time to the teaching of German, and only the third year I have attempted to teach at all, you will expect me rather to suggest these problems, for you and those who are to address you later this afternoon and evening to solve. While I shall tell you of some of my attempts to solve them, you will understand that these have been only partially successful and are not presented as wholly satisfactory solutions.

I have always felt, as Melchthal expressed it in "Wilhelm Tell," that I ought to remain modestly silent in this assembly of much-experienced individuals. Yet today may I make to you his appeal,

"Nicht weil ich jung bin und nicht viel erlebte,
Verachtet meinen Rat und meine Rede."

Someone once said that "the highest triumph of erudition, in the school book or in the school room, is the most masterful helpfulness; and that he who would lead the children of knowledge, as of faith, must himself become as a little child." If that be true, then those of us who have not yet had time to forget our own struggles as beginners in the study of German, may have one advantage over our more experienced colleagues. Yet we, too, find that we fail to remember many of those early experiences, so *the problem of putting ourselves in the student's place* as we prepare our lessons, and of trying to think just what his difficulties will be, in order to give him helpful suggestions, and not to discourage him by expecting too much of him, confronts us all.

It is said to be the common mistake of the inexperienced teacher, fresh from lessons of college length, to overestimate the ability of his pupils and to assign herculean tasks. However, it seems to me it is equally true that the teacher of long experience, as he becomes more and more proficient in his subject, forgets how difficult it once was for him, and unconsciously raises his requirements for his pupils.

This student's point of view I have frequently been assisted in gaining by going over the advance lesson with a pupil of average ability, during

my consultation hour and noting his chief difficulties. Then, next day in assigning that lesson, I would make sure that those points were understood and would avoid assigning a lesson too long to be properly prepared with a fair amount of effort, or to be sufficiently discussed during a class period. The advice we received in college to be very careful in assigning the lesson, and then to insist upon it to the letter, and the warning that warmed-over lessons are no more palatable than warmed-over dinners, may well be kept constantly in mind.

The *second problem* I wish to present is *that of securing attention*. There are usually at least a few in every large class who are not earnest students, anxious to profit by everything that is said during the class hour. It is rather difficult to keep each member of a beginning German class of thirty pupils busy listening when he has so little opportunity to recite in the forty or fifty minutes allotted to a class period. Yet attention to the reading or translation, or grammar drill in declensions and conjugations may be secured by asking various pupils to suggest corrections or improvements after the individual recitation has been completed, by stopping one in an unexpected place for another to continue, and in the drill on declensions and conjugations sometimes having only one form given by one pupil, then calling on another to correct his predecessor or give the next form, as the case may be.

Interest in accurate pronunciation may occasionally be gained by allowing one to read until some one else in the class notices a mistake, when he is allowed to correct it and continue the reading. Of course this device must be used very sparingly for it does not give the practice to those who need it most, but it certainly arouses the interest of all, both in reading and correcting the errors very carefully.

It is not usually so difficult to gain attention for the advance lesson as for the review which has lost its novelty. So a *third problem*, which arises in connection with the second, is, *how to avoid making the necessary constant repetition of old principles tiresome* to the more advanced pupils in the class, while you feel sure that the backward ones do not yet thoroughly understand them.

Introducing something new with the old, conducting the class in a different way from that in which you did the other time the subject was presented, will aid in giving all the pleasurable feeling that they are not merely "marking time." For example, the noun declensions may be reviewed when the adjective declensions are being learned, and later, both adjective and noun declensions may be reviewed when various pronouns, possessive, indefinite, and pronominal adjectives are being studied. (The gender and declensions of nouns is, of course, most easily fixed in mind by learning the nominative and genitive singular and nominative plural of each with the proper form of the definite article.) The conjugation of the weak verb may be introduced again with the conju-

gation of the strong, and corresponding tenses contrasted. The memorizing of the principal parts of the strong verbs may be facilitated somewhat by grouping those having the same ablaut.

Presenting the subject matter in a different way from that in which it is presented in the grammar and deriving and formulating some new principle in class is always interesting to the pupils. There is an alphabetic list of twenty-four indefinite pronouns and pronominal adjectives in Thomas's German Grammar. It seemed to the class an enormous task to learn of each whether or not it was inflected, its meaning, etc. But when in class I arranged these words on the board in three columns, those always inflected, sometimes inflected and never inflected, following the suggestions of my pupils, and in each column grouped those similar or exactly opposite in meaning, or similar in declension, as, *jed-* and *jeglich*, *einig-* and *etlich*, *jemand* and *niemand*, *etwas* and *nichts*, *ein* and *kein*, the lists were learned without much difficulty and with apparent pleasure. Another day in reviewing these lists we learned that half of the twenty-four were indefinite pronouns and half pronominal adjectives, and underlining the pronouns, found just four in each column. This discovery of symmetry pleased them and aided them greatly in remembering the pronouns.

Another way of avoiding the monotony of endless repetition to some extent, is in some cases to withhold the explanation of the principle until it has been illustrated in the text, and the pupils ask for it. They are usually quite willing to learn anything of which they can make some use. Difficulties come up in reading their text and in writing their prose exercises. They want to know why we say "es ist" in one sentence and "es gibt" in another, how they can tell what case a preposition will govern, when to use *haben* and when *sein* as auxiliaries, when to use the strong perfect participle of a modal and when the weak, when the true and when the quasi-passive voice, in what order to arrange all the minor elements in a sentence, etc., etc. Then after they have seen the necessity of knowing why, they appreciate an explanation of the principle, and will remember it without so much repetition, because it means something to them. I always encourage them to require proof in their grammars for the statements I make. So they ask me where they can find out more about various subjects, and make a little index in their notebooks of paragraphs in Part II, useful for reference, as for example, the lists of prepositions, conjunctions, verbs, the subjunctive mood, etc.

Again, much of this constant reviewing might be done away with, if only we could get pupils to profit by corrections made, so that they would not repeat the same mistakes with maddening persistence. This plan has been of some assistance to me. When correcting test papers, I note the mistakes most frequently made, i. e., in the spelling of words like *berühmt*, *vielleicht*, *Deutsch*, etc., and write the correct forms on the

board when I return the papers, calling particular attention to parts usually misspelled. I also call attention to wrong verb forms, warning against the common error of spelling *wirst* and *wird* as *wirdst* and *wirt*. Other mistakes frequently made are the addition of *t* in the third person singular, preterit tense, the use of perfect participle for present infinitive in the future and present conditional, the use of the preterit indicative instead of the subjunctive of *werden* in the conditional mood, etc., etc. Mistakes due to pure carelessness are often overcome by requiring the work to be done over.

It is always well to emphasize only one thing at a time in these tests, I think, and judge the papers from that point of view, so as not to bewilder and discourage the pupil with a multiplicity of requirements, but let him overcome one difficulty at a time. I always emphasize the practice rather than the principle and do not often ask for rules but for declensions or conjugations and sentences which require knowledge of the principles involved, except for the few who have a feeling for the language, and even these learn that their feeling is not always trustworthy.

I always try to return the test papers promptly, next day, if possible, so that what the pupils have written is still fresh in their minds, and I go over all the *sentences*, particularly, with the class, telling them what each form should be and having them tell why. They are expected, during this reading, to correct their mistakes, which I have in most cases simply indicated, and if any still have difficulties not common to most of the class, they may come during my daily consultation hour for further assistance. Time is thus saved for the others in class, and yet those backward students, who are really anxious to learn, need not become discouraged, for they feel that I am really interested in their individual progress, and the steady improvement under this method of some whom I feared at first were hopeless cases, has amply repaid me for the additional time thus spent. Genuine interest in the pupils and enthusiasm for the work are, of course, essentials for anyone who wishes to arouse interest in his subject.

This method has to a large extent done away with the usual reception of such returned papers, a hasty glance at the last page to see if they "passed" and then a crumpling up and consigning to the wastebasket. They have learned not to think of a test as over, to be forgotten as soon as possible, when they have handed in their papers, but know that the same subjects will continually recur in new form, and if really earnest students (as, of course, not all are), will keep these papers for future reference.

Pupils are not usually interested nearly so much in the writing of English-German prose exercises as in other parts of the work. In fact, they often fairly hate it, because it is natural to dislike doing anything

extremely difficult, and it is discouraging to find that the sentences they labored so hard to make perfect are still full of mistakes. So a *fourth problem is that of arousing a genuine interest in prose composition.*

If the prose exercises are based upon the text, as they are, for example, in Lange's "German Method for Beginners," many of the difficulties ordinarily attending the work disappear, for before the exercises are written, the pupils have already become familiar with the vocabulary and the particular constructions needed, through reading and answering questions in German upon the text. On the other hand, however, there is a well-founded objection to such combinations of grammar, reader and exercises, that the grammar section is usually too much condensed and important principles are omitted. I understand that Lange's "German Method" is now being revised to correct this fault. If we might have a grammar like Thomas's with exercises based on a reader like "Glück Auf," much more satisfactory results might be secured, for young men and women in their 'teens or early twenties, as we have them in our German classes in the third and fourth year of their high school course, demand something more substantial, more worth remembering than the so-called "Lustige Geschichten" found in many readers for beginners, which seem much better adapted for use in the lower grades than in the high school. They are much interested in stories of German history and customs, and even in German mythology, but the point in many of those supposedly funny stories they fail to see, or if the story does seem amusing when first read at home, it ceases to be amusing when reread and again reviewed in class. For it is usually the surprise at the unexpected ending which makes any joke funny. So it seems to me that such stories should be reserved for occasional sight-reading in class.

Yet even when we are handicapped by having to use detached exercises, such as those in Thomas's "German Grammar," which are more sensible than those in some other grammars and yet increase in difficulty too rapidly, this prose work may be robbed of many of its terrors by preparation in class the day lesson is assigned. I always go over the exercises with the class the day before it is to be handed in, not, of course, giving them such assistance as to render them helpless and dependent upon me, but calling their attention to the most difficult points only, those in which they would be very likely to make mistakes if their attention had not been called to them. For example, when there are several German words, as *steigen*, *aufgehen* and *aufsteigen*, meaning *to rise*, I call their attention to that fact and have them look in their vocabularies so as to decide from the illustration or explanations given there, which word they should use for *rise* in the sentence, "Prices are rising higher and higher." In the same way I have them consult their lists of prepositions and conjunctions and decide when to use *an* or *auf*;

von or *aus*; *als*, *indem* or *wie*; *als* or *wenn*, etc. In this way they are really doing the work themselves, yet I am there to guide them. When subordinate clauses and contrary to fact conditions are first introduced in the exercises, we state the position of the inflected and uninflected verb in each clause in several sentences by observing its position in similar German sentences, and then formulate our rules. I find that it is much easier for them to remember, as I was taught, that the inflected verb is always the *second element* in every independent declarative sentence, than to think of the various rules for normal and inverted order. Of course they understand that the *first element* is not necessarily one word, but may be the subject and all its modifiers, an adverb, adverbial conjunction, phrase, or clause. Almost never do they make any mistakes now in the position of the inflected verb.

Then, the next day the pupils go to the board without books or papers and write these sentences, usually in German script, from dictation of the English sentence. I then correct them in class at the suggestions of the pupils, ask reasons for each correction, call for other versions, and comment upon them.

Exercises are written on rhetoric paper in ink on alternate lines. Corrections are made in class with pencil and the pupils sometimes hand the papers in or exchange them with each other for further corrections in red ink, if any mistakes have been overlooked. It is not always known when these papers will be called for. If carelessly corrected they receive low marks. Thus, much attention is paid to corrections and much more benefit is derived from them than would be the case if the teacher did all the work. Some of these corrected sentences are later repeated from memory in class, and on Monday reviews a number similar to them are written in class, thus emphasizing the importance of keeping and studying all corrected papers. This has caused a large number of the class to keep all their corrected sentences in a notebook, as they were advised, but not required to do.

In the second year classes the same general method is used, but the prose exercises are always based on the text read, and written after oral questions in class, asked either by their instructor or by some of them, have familiarized all with the text. Occasionally their prose exercise takes the form of a synopsis of a chapter or scene, written at home or in class. This I consider better than translation from the English, since it leads them to think in German. I sometimes give them a suggestive outline for such a synopsis in the form of German questions, reminding them of the order of events and the most important points, if the work is to be done without books in class.

In both classes much oral prose work may be given in the form of questions on the text. Variety may be introduced by occasionally having various members of the class ask the questions for others to answer.

In the first year work, particularly, much interest in this conversation may be developed by letting pupils describe their rooms, tell what they did during their vacations, discuss lectures, concerts and plays they attend during the year. Conversation on German geography may be based on the letters in Thomas' Grammar and the places mentioned there and in the text made more real to the students, not only by having them pointed out on the map, but by showing views of the persons and places mentioned. These views can be obtained in very convenient and attractive form on the postcards now so universally popular.

Of course I have mentioned only a few of the problems confronting the teacher of German grammar, and perhaps these are no longer problems to most of you, who from your loftier positions see difficulties as yet mercifully hidden from those of us whose vision is more restricted.

You will see by my various digressions that I have been taking full advantage of the familiar definition of a subject as "a point from which a speaker may take his departure, and to which he is never expected to return," for until I saw the printed program recently, I did not understand that the last word, "Grammar," was to be added to my subject. Let me conclude then with one more digression—a few words as to my method in general, glimpses of which I have already given you here and there.

I have said much of devices for arousing and retaining the interest of the pupils, yet by no means do I believe in the doctrine of "soft pedagogics," as one of my pupils testified when she said, "Its awfully hard, but I like it."

If I were to name this method, I suppose it would have to be called a combination of the grammar and reading methods with more or less daily practice in conversation. I am much interested in the natural method, but I believe that the chief aim, particularly in a two-year high school course with classes of twenty-five or thirty pupils, must be to teach the pupil to read rather than speak the language, if it is to teach him anything at all. So I agree with Professor Lutz, of Albion, who says in a recent magazine article, that he believes in the use of the foreign language in the class-room, if not carried to an extreme. "However, the moment the explanation in the foreign language fails to explain, the mother tongue of the pupil should be used. Otherwise precious time is lost."

I believe that translation is a valuable exercise, not so much for testing the student's knowledge of the original, which may often be shown by his reading, as to test his ability to express in clear, concise English what he has understood the author's meaning to be. Such attempts at translation as "I must *grab* the precious moment," "I saw the enemy and did not *slew* him," and "I did not waste the power of hot pains in idle tears," will perhaps, without many others which I might quote, show the necessity for more practice in careful choice of

words and forms of words. Particularly helpful is this practice in choosing between synonyms now when there is such a general tendency to the use of slang and the consequent impoverishment of the average vocabulary, with the result, for example, that *swell* and *fierce* seem to be the only adjectives many pupils use outside of the class-room.

I have not forgotten the kindly advice we received from Dr. Winkler, that our choice of method be governed by our ability. So my method now is not my ideal one, or the one I expect to use as soon as I can outgrow it. Let me say then, in conclusion, as another once said, "It is as a seeker rather than a giver that I come, to share my counsel with my more favored brethren; in order that by the confession of my own shortcomings, and especially by the criticism and discussion which this paper may elicit, I may be helped, and so, perchance, may help others, to find the 'better way.'"

THE IMPORTANCE OF PHILOLOGY AND HISTORICAL GRAMMAR IN THE TEACHING OF ELEMENTARY FRENCH.

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The student who graduates from the university with his teacher's certificate in French now has had his elementary course in French philology. This course has been of great benefit to him. Not only has it cleared up for him many points in French grammar about which he formerly had but a vague idea, but it has also shown him the reasons for many other points for which he formerly could find no explanation. It is therefore evident that when he begins teaching this course will be of great practical value to him in explaining difficult points to his students, the great question, however, being in what way he may best utilize this information which is his to their advantage and interest. This will greatly depend upon the character of the class and it is the purpose of this study to indicate briefly only such points as may be utilized in the most elementary classes, i. e., the first semester in the university or the first year in the high school and the manner in which this material may best be given to the class in which the students have no idea of phonetic law.

The text book in most general use in elementary classes is Fraser and Squair's French Grammar. This is a most excellent grammar but has to be supplemented in almost every lesson by information derived from some other source. The teacher should then not confine himself to the study of one text book, but should refer to several and choose from these various grammars the explanations most suited to his pupils.

However, since Fraser and Squair's is in most general use it will offer a convenient order for treating of various grammatical points in this paper.

The first place in which allusion to the Latin forms may be found of use is in paragraph 70 on the irregular comparison of adjectives and adverbs, where the Latin forms *meliozem*, *melius*, and *minus* may be cited as corresponding to the irregular French forms *meilleur*, *mieux*, and *moins*. Of course this allusion is of use only to those students who have had some Latin.

In dealing with the conjunctive and disjunctive personal pronouns it is well to call attention to the fact that the conjunctive forms are unstressed while the disjunctive forms are stressed. In this connection one may bring up the dual development of Latin *mē* into French *me* or *moi* according as it is stressed or unstressed and particular emphasis should be laid upon the point that *me* having no full vowel cannot in any way bear the stress, the form *moi* being always used when the word is to be emphasized. The student can then easily be made to see that *moi* according as it is stressed or unstressed and particular emphasis logical subject after *ce être*, for in all of these cases it distinctly bears the stress.

In dealing with the future and conditional the grammar itself calls attention to the formation of these tenses on pages 136 and 137, therefore it is not necessary to discuss them in this paper.

In dealing with the demonstrative *ce*, *ceci*, *cela*, it is well again to bring up the subject of stress and point out that *ce*, having no full vowel, is only to be used when not emphatic.

The difference between *ne—pas* and *ne—point* can be made very clear to the student by referring to the Latin forms *passum* and *punctum* and using them with verbs of motion, e. g., *non vado passum*, *non vado punctum*.

One of the most difficult and at the same time most neglected points in the teaching of elementary French is that of the irregular verbs. Often they are assigned by the teacher to the student to be learned as so many irregular forms without any instructions or explanations to aid his memory. In that case the task becomes simply mechanical and loses all interest. Now these forms present one of the most interesting phases of the French language, as anyone acquainted with the history of the language will readily concede. To the teacher most of these forms represent a natural and regular development according to well established phonetic laws, but how is the teacher to use his knowledge of these laws to the advantage and interest of the student? It will mean nothing to the student to be told that Latin intervocalic *sc* before *e* or *i* becomes *ss* in French generating an epenthetic *i*, nor that later this *ss* disappears before a consonant leaving a circumflex before *t*. The teacher must

recognize this difficulty and in dealing with these forms must take care to deal only with things easily understood by the student always keeping in mind, however, the real philological reason for every change.

Since the student has little or no knowledge of Latin it is evident that some form of French verb must be taken as a norm for conjugation. The form which first presents itself is the present participle. The teacher may then take as his norm the present participle, comparing the irregular forms with this norm.

Belonging to a class of verbs presenting a French present participle with *ss* (Latin *scere* verbs) we have three types represented with *ss* (Latin *scere* verbs) we have three types represented by *connaître*, *croître* and *naître*. The whole of the present indicative, the imperfect indicative and present subjunctive of these verbs may be regularly formed from the present participle if we give the student the rule that the *ss* of the participle disappears before a consonant leaving a circumflex before *t*, and call the student's attention to the fact that the circumflex is used to distinguish forms otherwise identical of *croître* and *croire*. (Lat. *sc.* before *e* becomes *ss* in French disengaging an epenthetic *i*, and this *ss* later disappears before a consonant leaving a circumflex before *t*; in the infinitive a *t* has been generated between *ss* and *R* as in Lax. *essere*, o. f. *estre*, mod. French *être*.)

Belonging to a class of verbs presenting a French present participle with intervocalic *s* (Lat. *cere* verbs) we have the types represented by *lire*, *plaire*, *conduire*, *dire*, *faire*. Here we may give the rule that the *s* of the present participle disappears before a consonant leaving no trace (except the circumflex in *plaît*). As irregular forms we then have to note *dites*, *faites*, *font*, and *fasse*, etc. In *Faire* we must call attention to the irregular future. (Lat. intervocalic *c* before *e* becomes *s* generating an epenthetic *i*, this *s* later disappearing before a consonant. *Legere* has been attracted to the larger class of verbs in *cere*.)

Although in general it is of no advantage to try to compare the past definite and past participle (also the imperfect subjunctive which is regularly formed on the past definite) with the present participle, nevertheless it will be found useful to compare these tenses with themselves in verbs which present like peculiarities. *Conduire*, *dire*, *faire écrire* have past participles in *t* (the first three coming from Lat. *inctum* which gives *it* in French and the last form in-*ptum*.)

Belonging to a class of verbs presenting a French present participle with *v* we have *écrire*, *boire*, *sivre*, *vivre*, *devoir*, *recevoir*, *pleuvoir*, *mouvoir* *pouvoir*. These verbs drop the *v* of the present participle stem before a consonant (except before the *r* of the infinitive and even there in *écrire* and *boire*).

Boire presents the stem vowel *oi* under the accent and *u* when the syllable is not accented. (*C. l.* short *i* becomes vulgar Latin *é*, which

develops under the accent into French *oi* and when not accented into *e* mute. This *e* mute has suffered attraction in this word to the surrounding labials and resulted in *u*.)

Devoir and *recevoir* show *oi* under the accent and *e* mute when the syllable is not accented. Compare *me, moi*.

In general French verbs in *oir*, i. e., *devoir, recevoir, pleuvoir, mouvoir, pouvoir, vouloir, valoir, falloir*, present past participles and past definites in *u* and *us* and omit the *oi* of the infinitive in the future.

Mouvoir, pouvoir, mourir, vouloir present *eu* under the accent and *ou* when the syllable is not accented, illustrating the tonic and atonic development of Latin *ō*.

Pouvoir, mourir, and courir present futures with *rr*.

Vouloir, valor, falloir, tenir, and venir present futures with *dr* (this *d* regularly developing between *l* or *n* and *r*).

Vouloir, valoir, falloir, and aller present subjunctives with *ill* (L. *mouillté*) except in the first and second persons of the plural which are regular.

In *pouvoir* we have the present subjunctive and second form of the first person singular present indicative built upon what is now the adjective form *puissant*, as we also have the present subjunctive of *savoir* built upon *sachant*.

Pouvoir, vouloir, valoir make the first and second persons of the singular of the present indicative in *x* as nouns in *eu* and *l* make their plurals in *x*. *Vouloir, valoir* and *falloir* vocalize their *l* to *u* before a consonant.

The irregular forms *vais, vas, va, vont* from Latin *vadere* and *irai* from Latin *ire* are to be noted for *aller*.

Acquérir, tenir, and venir present *ie* under the accent and *e* mute when the syllable is not accented (showing the tonic and atonic development of Lat. short *ê*).

Tenir, venir, prendre double their *n* before *e* mute.

In *tenir* and *venir* we have the future with *ndr* but the third person plural of the past definite with *nr*. This fact may be used to illustrate that the past definite is not a spoken tense.

Prendre presents a *d* before a consonant or when final.

Craindre, dormir, mettre, and vêtir present simplifications of consonant combinations *gn* Consonant becoming *n* Consonant, *rm* Consonant becoming *r* Consonant, and *tt* becoming *t* before a consonant or when final.

Envoyer presents no irregularities except in the future if we refer to paragraph 157 in the Grammar.

Ouvrir has first conjugation endings in the present indicative.

Croire and *rire* present no difficulties except in the past participle and past definite.

Vaincre presents *qu* before any vowel except *u*.

Voir has the future *verrai* like *Envoyer*.

Savoir has the present subjunctive built on *sachant* and also has the irregular forms *sais*, *sait*, *saurai* to note.

Moudre presents *d* before a consonant or when final, *l* before a vowel.

Resoudre presents *u* before a consonant, *ud* before *r*, and *lv* before a vowel.

Faillir has a present and future corresponding to *falloir*, otherwise it is regular.

S'Asseoir has present participles *asseyant* and *assoyant*. The conjugation formed on *assoyant* is regular while there are the forms *assieds*, *assied*, *assierai*, and *asseyerai* to be noted in the conjugation based upon *asseyant*.

If the foregoing remarks are utilized it will be possible for the teacher to have the student figure out the irregular forms of a new verb (with the exception of the past participle and past definite, and sometimes the student can even figure out these forms) before he sees the conjugation of these verbs in the Grammar. This not only interests the student, but impresses the irregularities on his memory. It is best perhaps to introduce the irregular verb after about the fifteenth lesson and give the class two or three a day until the important ones are covered, omitting those of less importance.

Besides the points already mentioned there are two or three points where the teacher may employ his knowledge of historical Grammar to awaken the interest of the student. One of these points is to be found in Exercise XXXIIIA. of the Grammar in the expression *Hotel-Dieu* which the teacher may point out as a remnant of the old French possessive without *de* and compare with the geographical name *Sault Ste. Marie*, already familiar to his students.

In connection with this old French possessive there is sure to come up in the reading in the elementary course the expression *de par* which the teacher should explain as coming from the Lat. *De parte* as in the expression *de parte regis*, o.f. *de par le rei*.

In regard to word order it is useless to refer the student to the Latin order, but the teacher may appeal to the student's reason giving him the rule that words closely connected in thought should be closely connected in position. The student should never be allowed to write *dis-moi ou ton ami est*. All the so-called rhetorical inversions mentioned in paragraph 237 are either for this reason or for emphasis.

It will then be seen that there are many points in the teaching of elementary French Grammar in which the teacher may employ his philological training to the advantage of the student. The teacher should however, always exercise great care to deal only with such terms and phenomena as the student can easily understand.

SHOULD OUR HIGH-SCHOOL COURSES IN LATIN BE EXTENDED DOWNWARD INTO THE SEVENTH AND EIGHTH GRADES?

I. THE POINT OF VIEW OF A DEPARTMENT OF LATIN.¹

PROFESSOR ANDREW F. WEST.

Dean of the Graduate School, Princeton University.

1. Power to think well and power to express well what we think are the two fundamental intellectual objects of a satisfactory secondary education. There are other intellectual objects besides these two; they are very valuable, but they are supplementary, not fundamental.

2. The educational experience of the most civilized countries of the modern world, for now nearly four centuries, points out mathematics as the best generally available foundation-study for developing power to think well, as well as the best study to prepare for the sciences; and also points out Latin as the best generally available foundation-study to train pupils in power of expression, as well as to prepare them for literary, historical, and other humanistic studies. As a matter of fact, no great modern system of secondary education has been constructed without giving a central and ample place to mathematics and Latin. If the best educational experience of the modern world is sufficient to settle this question, it is already settled, and settled decisively.

3. This does not conflict with establishing courses of secondary education without Latin, using the modern languages instead. But it has to be kept in mind that such courses, whatever their other value, are not and cannot be more than *specifically modern*, whereas Latin helps to make a course of study *universal* in intellectual value—and not least so by the immense help it gives in mastering the modern languages; so that, if the question should be, "What is the best way to master modern languages thoroughly and speedily?" the answer is, "Study Latin first." This applies especially to the English language—so much so that a boy well trained in Latin grammar never needs to study English grammar. And the reason is that in studying Latin grammar he is not so much studying a grammar of some particular language as grammar in general.

4. Mathematics is already allotted a large amount of time in our schools, from the beginning of the child's school education to the end of the high-school or academy. Latin, on the contrary, is not usually given more than five periods a week for four years. This amount of time, even adding the prescribed Latin courses of such colleges as require it, is much less than

¹This abstract of Dean West's address was first printed in the *School Review* for March. Many requests for the full address have come in, but Dean West found it impossible to command the time to reduce his address to manuscript for the printer.

the amount allotted in Great Britain, France, and Germany, where Latin is usually given from seven to nine years and with more exercises a week than we allow. It is safe to say that, taking our education as a whole, we do not give more than half as much time to Latin as these other countries do. We cannot produce the best results without more time.

5. There is a good reason for this in the very nature of Latin as a study. It is not one of the easier studies. And yet it is not worth studying for this reason, but because it is highly useful, and therefore worth making the effort to master. The mastering of something worth while, and something that involves effort to surmount difficulties—thus and thus alone gaining more and more power through virile exercise of the mind—is the indispensable element in any education that will serve as a basis for the whole after-life. Now Latin is the one most generally available language-study that provides most fully just this training for American boys and girls.

Furthermore, the linguistic and literary sense develops slowly. Its development cannot be hastened, forced, or abridged without injury to the pupil. If we are allotted only four years in our secondary education in Latin, we cannot do in that time the work of eight or nine years. Four years' work needs four years' time; otherwise it is not properly laid out. The best that can be done in four years is therefore the first four years in Latin. We can perhaps stretch it a little, in view of the fact that the loss of all that follows is so great that even a hurried glimpse at the richer and more fruitful Latin that lies ahead is worth giving the pupil, if only to show how much more he would gain if he could have time to go farther. What a pity it is to cut off Latin studies at the very time when the early and less enjoyable disciplinary period ends and the second or cultural period begins,—the period when the pupil begins to reap the rich reward, the full fruitage of his earlier study! Four years of Latin is good, but more is not only better, but far better, especially in its effect on the student who after his march through the Wilderness of Grammar is at last in sight of the Promised Land of Literature.

6. This is a promising time to lengthen the school courses in Latin. There is a vast increase in the number of pupils taking Latin. There is also a widespread and spontaneous movement away from the scattered miscellany of studies, away from a smattering of many things, and toward concentration of effort on a few studies of the highest educational value. This is a golden opportunity to purify and clarify our programmes of study, to assert the primacy of the principle that a good course of high-school study consists of a few things of central importance—Latin among them—taught fully and deliberately without haste or crowding or dispersion of effort, and all combining efficiently to one sole end: an end that is only too often forgotten, namely, an education that will serve as a basis for the whole life of the pupil.

II. THE VIEW-POINT OF A DEPARTMENT OF EDUCATION

PROFESSOR THEODORE DE LAGUNAUniversity of Michigan

Professor Kelsey has already called the attention of the Conference to the fact that the question of the six-year high school course is much larger than that of the earlier study of Latin. It is important for two reasons that this distinction be kept in mind. First, from the standpoint of mere logic, it is quite possible that divergent answers might be given to the two questions; and, indeed, the advisability of the extended high school course is probably quite clear to many minds that are not yet willing to advise the study of Latin by twelve-year-old children. Secondly, by reason of the wide-spread prejudice against classical studies, it is to be feared that harm might be done if the project of high school extension became too prominently associated with the interests of Latin instruction merely. You will observe that it is upon the larger of the two questions that I am to address you at this time.

But before taking up the topic assigned to me, I wish to say a few words in comment upon a statement of the previous speaker (Dr. West), to the effect that Latin is more available than Greek for the purposes of secondary education. In certain very obvious senses this is true; but for that very reason it is important that the ambiguity of the statement be realized, and the senses noted in which it is possibly very far from true. It seems to be too much taken for granted nowadays, that the study of Greek is a matter of minor concern; that if the number of Latin students in the high schools does not decrease, we should be content; in short, that Greek as a high school subject has had its day. When I contest these opinions, it is somewhat comforting to reflect that if I am wrong I am not likely to accomplish much harm.

In the first place, then, Greek is more available than Latin for secondary school purposes, by reason of its having a better tradition. It is better taught where it is taught. The teachers are, in general, more scholarly and more enthusiastic. In a large school, the head of the classical department is likely to appropriate the Greek teaching to himself. Partly in consequence of the better teaching, we have much better elementary text books—primers, readers, and the like—in Greek than we have in Latin.

In the second place, Greek is probably easier than Latin for most minds. For the strangeness of the new alphabet is soon overcome; and the greater complexity of the inflections is more than counterbalanced by the greater simplicity and directness of Greek style.

In the third place, Greek literature is far richer than Latin literature in material that is inspiring to young people; not that Latin literature is especially weak in this respect, but that the Greek is extraordinarily strong.

A comparison of the authors commonly read in the first three or four years of instruction makes comment needless—Xenophon, Homer, Plato, and Herodotus, as against Caesar, Nepos, Cicero, and Virgil. The characteristic values of Latin literature are appreciable only by men and women; and those writings which constitute its peculiar treasure, and in respect to which it is absolutely irreplaceable—the *Epistles* of Horace, for example—are almost wholly beyond boyish tastes. All the more reason, by the way, that an intelligent effort should be made to utilize in the high schools those Latin classics which have been found to make a strong appeal to youthful interest—and this without scrupulous regard to their formal difficulties.¹

For these reasons I question the truth of the statement, that Latin is more available than Greek in secondary education—except in the sense that it actually has the right of way, and that it is provided with a greater number of indifferently prepared teachers. The discrimination against Greek on the part of many of our leading colleges appears to me to be absolutely inexcusable. Our own University, for example, requires for entrance two units of a foreign language, *which must not be Greek*; and whereas four units of preparation in Latin, French, or German are accepted, only two are allowed in Greek. Now I call that wicked; for the fact that the people of this country do not now appreciate the value of Greek is no reason for not giving it equal rights before the law. For the law itself is a powerful factor in forming public opinion; and so long as universities and colleges conspire to degrade Greek to the level of a mere accomplishment, we cannot expect the general public to take a more enlightened view. The fact is that for the average American boy or girl of high school age Greek is a decidedly more valuable study than Latin. To be sure, where literary, historical, or philosophical scholarship is in question, no choice can be admitted, since, except within narrow limits, both languages are indispensable. But where such scholarship is not in view, and a choice appears to be necessary, Greek ought generally to be preferred; and high school students who intend electing only a single ancient language ought generally to be encouraged to let that be Greek.

But it is high time for us to return to the theme which we are supposed to be considering. And let us say at the outset that the question of the six-year high school course is almost wholly one of dollars and cents. Comparatively few educators will contest the advisability of the reform, provided the necessary money be forthcoming. But it will cost money, and it would be folly to attempt it without the money. In place of seventh and eighth grade teachers, that can be hired for the wretched sum of four and

¹ One imperative need is a selection of Latin poetry suitable for memorization by first-year students. As the scansion—and especially the division—of the verses would be marked and as the meaning would be carefully explained by the teacher, the intrinsic charm of the poems would be a matter of far greater moment than mere simplicity.

five hundred dollars a year, it will be necessary to secure an equal number of qualified high school teachers, who will ask the not very extravagant sum of six or seven hundred dollars a year. But the legitimate inference to be drawn from this fact is simply that it is our duty to work for the money. Let us lose no opportunity of impressing upon the public our conviction that this change ought to be effected, and it will not be long before the public will be ready to provide the necessary means.

That apart from the question of money the proposed reform is feasible is at least indicated by the fact that it has already been partly carried out. American and English history and literature are quite generally taught in the seventh and eighth grades. Civics, algebra, geometry, instrumental drawing, and German make up a list from which additions are frequently made. And no one will question that the work of these grades has greatly increased in interest and value through the addition of such studies to their curriculum. The reform which is now advocated is simply another move in the same direction.

The feasibility of the reform is further proved by the recent demonstration, that a considerable part of the time usually devoted to special drill in spelling and arithmetic is very nearly wasted. Exact observation has shown that the benefit derived from such drill is vanishingly small in comparison with the time and effort expended. With a comparatively small amount of practice each pupil reaches a degree of skill, which gradually rises with increasing maturity, but which is capable of very little improvement at any given time.

Furthermore, it has been brought to our attention, that a very small part of the industrial and commercial applications of arithmetic which are commonly included in our grammar school courses is of real practical value. The problems in papering walls and carpeting floors are solved by our children in ways that would make a paper-hanger or a carpet-layer explode with laughter; and in fact such rubbish is usually defended only on the ground of the drill in ciphering which it affords. There is no sense in teaching children apothecaries' weight; the druggists themselves use the avoirdupois scale for everything they sell except prescriptions. The subjects of commission and brokerage, partial payments, and the like should either be organized into elementary commercial courses, where the emphasis is placed upon the business relations involved and not upon the mere working out of sums—or omitted altogether.

A great deal of time is now known to be wastefully expended upon the subject of English grammar. A certain amount of grammatical knowledge is exceedingly useful and very properly belongs to elementary instruction,—the distinctions of the parts of speech, the few remaining inflections, and the commoner forms of sentence-structure. But all this may properly be taught before the seventh and eighth school years, and anything more than this is of doubtful value. The structure of our language is such that to be studied

with any profit it must be studied historically; and the proper place for the study is not the elementary school but the university. I do not think that there is any material disagreement among English scholars on this point. At any rate, few would hesitate to declare that an English grammar of rules and exceptions is practically good for nothing. The pretense of knowledge which such a study gives is worse than ignorance. For one fault which it censures, there are a score which escape it, and which can only be corrected by mere habituation.

We have, I think, sufficient reason to believe that the economies thus indicated will make ample room for the extended high school course.

Let us consider briefly some of the advantages which may be expected from the change.

1. It will give the elements of higher culture to multitudes of children, who at fourteen or fifteen years of age must go to work. For the sake of such children any abridgement of the elementary school course, which does not detract from its essential values, must be eagerly welcomed.

2. It will permit the introduction into the high school of a few very much needed studies,—elementary political economy, for example.

3. It will give greater unity and completeness to the high school course. If we define secondary education as such an introduction to the elements of general culture as is necessary for intelligent specialization, it is obvious that the high schools do not satisfactorily complete this task. At present their course is largely an accidental conglomerate, made up, for the most part, of just such studies as the colleges have found it convenient to pass down to their feeders. It is organized upon no principle, and leads nowhere in particular. That is why, I take it, the high schools are so dependent upon collegiate recognition of their work. It is the only popularly recognized test of their usefulness. Though only ten per cent of the students ever go to college, it is this ten per cent that make or break the reputation of the school and determine the professional standing of its teachers. It is idle to exclaim that this is an injustice and ought not to be. It will continue to be, until the liberal education given by the high schools gains a certain completeness of its own. So long as the high schools are essentially preparatory schools, they will continue to be judged as such.

It is a pity that the agitation for the extended high school course has come so largely from college men. For the fact is that though the colleges will be greatly benefited by the change the chief benefit will come to the high school students who can go no farther. The college student usually gets his secondary education finished off somehow, even though the greater part of his freshman and sophomore years may be necessary for the purpose. It is the man who never reaches college that suffers most from the truncated condition of the high school course.

4. The gain to the communities will be tremendous. To speak only of the non-professional departments of the schools,—these will take a place

substantially similar to that occupied by the colleges of a generation ago; except that they will give to thousands what the colleges gave to hundreds. They will fill our cities and villages with a genuine elite, a society of men and women prepared to labor for and to enjoy the things of the higher life.

5. The colleges and universities will, of course, be relieved of a considerable part of their freshman and sophomore work. It is notorious that this work is now done in very inefficient fashion. To recall a single example,—the section in freshman German (in the University of California), in which I got my introduction to the language, numbered ninety students. And the large sections are not the worst of it. These are usually taught by good men, whose minds are kept alive by inspiring advanced work. It is the freshman grind in such subjects as rhetoric and mathematics, that constitutes the grimmest aspect of the whole sad business,—a grind conducted by young men who probably *have* had some talent and ambition, but who have been effectively tortured out of it by long hours of slavish routine. The high schools, with a six-year course, can do this work vastly better than the colleges with their ever more seriously overtaxed resources, can possibly do it. The high schools, for one thing, will assign to the work, not raw instructors, but their best and most experienced teachers—men to whom secondary education is not a mere grind, but their chosen profession. Perhaps we should add that the extension of the high school course will probably tend to attract a desirable class of men to secondary work.

6. The most embarrassing problems attaching to the free elective system in the colleges will be fairly solved. The entering students will already have a broad foundation for somewhat specialized work. This will be no small advantage. The one thing that most severely tests the training of the college student of today is not his success in passing the various courses which he elect. It is the election itself—the choice from scores of courses of just those that will best contribute to the scholarly aim which he has in view. If a man of good capacity, without any high school education at all, but with a fair knowledge of the common school branches, should be permitted to enter almost any one of our larger universities, he would have little difficulty in passing off a sufficient number of units of work to enable him to graduate. But his course would be lamentably one-sided. A four years' high school course would open up a vastly wider range of possibilities, and would make the student's choice among these possibilities not wholly unintelligent. Still it must be confessed that the high school graduate of today is very inadequately prepared to take advantage of the opportunities offered by the free elective system; and a good deal of misdirected effort is the consequence. Every year of added preparation will be of immense value in this respect.

7. Finally, the proposed change will ensure better preparation for the technical and professional schools, and will largely obviate the necessity, now beginning to be felt, of requiring one or two years of college work for entrance to such schools. This latter plan, as we know, would work a good deal of hardship. Twenty-two or twenty-three years of age is late enough

for the young man to begin the battle of life. To require two more years for preparation is to impose a tremendous tax upon the best manhood of the nation. It means, for one thing, two years' postponement of the time of possible marriage; and that implies a loss to the nation that nothing on earth can repay. If, nevertheless, existing conditions are such that this added tax appears to be necessary, then it is high time, say I, to change the conditions.

These are some of the more important advantages to be looked for from the lengthened high school course. One word of caution in the matter has already been given—that the reform will cost money and ought not to be attempted without the necessary funds. One other brief caution may perhaps be pardoned.

It is not to be expected that precisely the same material and the same methods of teaching that have proved satisfactory with young people fourteen or fifteen years of age, will suffice with children two years younger. If the attempt is made to transfer matter and manner without change, a very considerable waste of energy is certain to result. In the case of Latin, for example, it will be found that seventh and eighth grade pupils can do scarcely more work in two years than ninth grade pupils regularly accomplish in one. Now such a result is not at all what should be contemplated, when the study of Latin is recommended for twelve-year-old children. Such children, we may be sure, can accomplish very nearly as much as their older brothers and sisters, if only the instruction be properly adapted to their capacities. And this means, in language work, that it be much simpler and much greater in amount. Instead of ten sentences of Latin to be read each day, give twenty; instead of five to be translated into Latin, give fifteen, but so simple as scarcely to require reflection. Let the inflections be carefully taught, but after Comenius's plan: the walls hung with paradigms for constant reference, and the meanings of the forms impressed by plentiful oral and written practice. Let the necessary syntactical principles be taught; but let these too be enforced by double the usual amount of illustration. Make the children work hard, but do so by making them work fast. What the youngsters need is not practice without precept; but they certainly do need a goodly allowance of rapid, easy practice.

III. DISCUSSION OF DEAN WEST'S ADDRESS

SUPERINTENDENT J. STANLEY BROWN
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I find myself so completely in harmony with what Dean West has postulated that there is little or nothing to controvert.

The first proposition, "power to think and power to express what we think" is certainly a great desideratum in any scheme of education. As to the second proposition, the fact that mathematics preceded Latin in its intro-

duction into the curriculum, may in a measure account for the longer period now given to mathematics, but it certainly does not justify it, because if there is one place in the curriculum today where results are so indefensibly meagre, considering expenditure of time, it is in the elementary work in mathematics, largely arithmetic. The normal amount assigned before passing to schools of secondary grade is about five years. If properly adjusted, properly graded, and the utterly useless material rejected, we could turn out a better product in three years of work than we now do with five. We would then be at liberty to push back where it belongs, some of the Latin work which is now begun in the High School.

The normal child, twelve years old, is in better condition to begin work in foreign language than he is at any succeeding period. The beginning of any language is very largely memoriter work. The child is passing into the youth stage and is at the ideal time of life for making large drains on his memoriter powers. Beginning with the adolescent stage, about the age of twelve years, or the entering of the seventh grade, as our schools are at present for the most part organized, Latin work ought to be started, because it is the best basal language, and it is economy of time in taking up any other foreign language, to have had three or four years of Latin.

All may have observed the great difference between two students entering upon foreign language work, the one with even two years of Latin as a basis, and the other with none. Other things being equal, the former easily outstrips the latter. We have students in our school now illustrating the condition mentioned, and we are sure the truth of our statement is universal. We have students now doing Latin Lessons in a satisfactory manner, although they had had only six years of training before they came to us. We believe that when the child reaches the adolescent stage he is in a better condition for the beginning of linguistic work than he will be at any succeeding stage.

It is not only economy in time to begin foreign language at this time, but it is economy in money, in schools short of funds, to study Latin or other foreign language rather than science with the expensive laboratory equipment necessary. Our experience shows us that the best work in all lines is done by students who have had training in Latin. If so much can be done with our present foreshortened course, it is evident that much more might be done if it were extended downward two years. Certain it is if we are ever to acquire the facility of the English schools, we shall need at least two years more than we have now. A writer whose statements I have no reason to question says, "At Eton one may see classes of boys of twelve years listening with evident appreciation and enjoyment to stories read and told them in Latin by the master. Latin is used there as a real language and not as a mass of dead material suitable for mental discipline. The masters talk freely, easily and naturally in Latin and the pupils often respond in the same way. I think I came nearer at Eton feeling that Latin could be used in the interchange of ideas than I ever did before. How many pupils

in the classics in our secondary schools ever acquire a sense of naturalness and vitality of the ancient languages. If you are a Latin teacher ask yourself whether the language is for your pupils something very remote from everything that they regard as human and desirable." What is said may be applied to college students with about the same truth as to secondary school students, and I mention this not to defend the scheme but to emphasize the fact that we need to devote more time to Latin in the earlier years of the course.

Dean West is right that now is a good time to lengthen the school course. And this discussion can not be separated from its related problem, the length of the elementary school course. At least four states whose educational systems find favor have had committees at work on the Course of Study, with a view to reducing it to six years, thereby giving universal opportunity for doing what is done today in only a few public school systems.

At least one State of this Union has never had but six years in its elementary school course, and yet her boys and girls enter at once upon their secondary school work with no apparent difficulty. In all these ways the opportunity is open to begin Latin at the end of the sixth school year. It is a good time, as Dean West suggests, to purify and clarify our programs of studies. We would certainly be unwilling to have the subject of Latin simply injected into the seventh and eighth grade courses of study as those courses are now arranged, because this would mean to invite failure as it has done in almost all instances where such schemes have been tried, but with a careful and thoroughly scientific reorganization of the Course of Study for elementary schools Latin may be given the place it deserves; its teachings provided for in a rational way and the experiment will be its own defense.

The thought which the Dean suggests near the close of his resumé, "Not many things but much" in the High School curriculum, not dissipation of energy but concentration, not extension but intension in the curriculum is worthy of the most serious consideration of the best schoolmen of the country. In order to carry out the scheme set forth, it means that we must have larger numbers of college-trained men and women teaching in elementary and secondary schools, and the demand for such will be met when salaries are at least made equal to the self regulated salaries of plasterers and plumbers. I am not at all sure that I have fairly interpreted Dr. Whitney's theses, that there is a wide-spread demand for a reorganization of primary and secondary school curricula. Committees, state and national, are at work and so restless have some towns and cities become that they are grappling with this problem on their own account, and in some cases a solution sufficient to form a good working basis has been reached.

No one can tell just how our present courses of study came into being. Subjects and courses have been added from time to time, and in the main with little reference to what was already there. We talked for a few years

of enriching the Course of Study, and this has gone to such an extent that we feel as if some impoverishing process must soon be introduced in order to head off pedagogical *gout*. The normally developed boy or girl ought to be able to do acceptable secondary school work at twelve years of age and ought to be ready to complete the ordinary four year course in secondary schools by the age of sixteen. If at such time, training, habits, complete development seem to advise it, the youth may be sent away to college; but if such course is not wise, he ought to remain at home in school for two years additional work. In a well-organized Course of Study he will have had by this time six years of training in Latin and be able to master any kind of course which the college may offer.

If we accept Dr. Whitney's statements that there is no ground for retaining present courses if a better adjustment can be made, and that two years might be saved by so doing, and that this scheme is practicable and that such reform is urgently needed, the work of making the change ought to be accepted by school men everywhere and by Departments of Education in the University and Normal School, with a view to setting afoot the most pronounced advance in education which has been suggested during the last two decades.

One of the best arguments for extending the work of the High School downward is found in the extreme positions taken now by some of the best Universities on the Elective System. Almost the entire responsibility for teaching the fundamentals for both those who do and those who do not enter college is placed on the High School. This is largely the result of the Elective System with which, sanely administered, I have no quarrel, but it makes necessary the assumption of a much larger amount of the fundamentals, because more of these were once covered in the college proper.

The field of the High School endeavor has slowly but persistently extended, but thus far its direction has, in the main, been upward. Now it must look in the opposite direction, and we shall all agree upon the limit of this extension, when we shall obtain a common definition for Elementary School, High School and college. And, lastly, for adjustment and self-activity.

IDIOM AND RACE,

WITH PARTICULAR REFERENCE TO LATIN.

BY PROFESSOR FRANK B. MEYER,

Hillsdale College.

"Every standard language, as distinct from folk speech and dialect, has been, in the history of the world, the exponent of some special movement in intercourse and civilization, the garb of some special type of

human culture, the voice of some special form of instituted order among men,—commercial, political, religious or cultural. Latin, once the speech of a petty district by the Tiber, became the standard medium of intercourse of a mighty empire, absorbed into itself the spirit of the institution, became its outward embodiment and survives today as a monument to the essential character of that institution better and truer than Colosseum or Forum. Its present place in education, in literature, in law is determined by the place Rome still holds in the organized life of Europe, and in all organized life whose sources are in European civilization. The school-boy drinks in the life of old Rome and the spirit of its institutions,—law, order, organization, authority.

"A man's character is the resultant of all the conscious choices of his life. Language is of like sort with character. Every speaker in all the generations, in every word he has uttered, has helped to build it. The words either tend to strengthen the standing norm, and that in hearer, speaker, or both, or they play their part in starting divergence and change or in loosening the foundations of the norm. Even in the outward characteristics of their structure languages represent, in the grand style of summary, the dominant social conditions in the history of those people that speak them. But grammar is to the average healthy being the driest and deathliest of all the disciplines. Treated as an end unto itself it desiccates teacher and pupil alike. Grammar represents the application of a method that is lifeless to a subject matter that is life; it is a case of inevitable and eternal misfit. Language can not be unlocked by logic; it can be unlocked only by sympathy."

These words of President Benjamin Ide Wheeler are many to select as a text. But as such they are intended to serve.

That character is revealed by speech is a truism. But it is also evident that modifying conditions must be taken into account. Especially is it necessary to be cautious in dealing with a subject that involves tempting generalizations. Every race is, indeed, as a whole, the artificer of its own speech and herein is manifested the sum and general effect of its capacities in this special direction of action. But the word "artificer" should be emphasized; for language is not beyond the free agency of man and can be made and changed by human effort. Language is not altogether the immediate and necessary product of physical organization. An Englishman, a Frenchman and a Chinaman are not made to talk differently because of any difference in brains or organs of articulation. Brogue is often said to be merely acquired. The child of American missionaries, if reared exclusively among Chinese children, learns to speak Chinese almost as fluently, or quite as fluently, as his mates. In fact whole nations have exchanged their ancestral tongues for others widely different in character. Nor is the nature of language determined wholly by physical conditions and the inheritance of a common racial type that tends to make the muscular

and nervous systems of a people to correspond in minute details.¹ The Italian's enthusiasm for *dolce far niente*, according to a recent writer, is to be explained by the average high temperature in which he lives. Yet the ancient Romans can hardly be accused of inactivity. Culture and civilization developed from within a people or imposed upon them from without may modify the native vocabulary and idiom as well as the national type of character.

The discussion may be assisted by treating not of races but of racial types. A German ship captain seeks to terminate his disgrace by blowing out his brains. A French count, the victim of a far worse shipwreck, one infinitely more dishonorable, lifts his head high above his disgrace. The Teuton has displayed Gallic excitability and the Gaul has exhibited Teutonic phlegm. And yet, in spite of occasional exceptions like this, it is true that the Germanic character is of a phlegmatic type that is in marked contrast with the typical excitability of the French. Humbolt's dictum "Between a people and its language there is complete identity" must certainly be qualified. However, altho scientific accuracy can not be attained, many interesting and perhaps helpful suggestions may always be expected from an endeavor to learn in what ways a language corresponds to the geographical and climatic surroundings, the occupations, the temperament and the civilization of the people that speak that language.

Now, if it is true, as Whitney says, that "language is a picture of the community to which it belongs, in it their capacities are exhibited, their characters are expressed, the grade of knowledge which they have attained is indicated and their manners and institutions are exhibited," if this is true, evidently the student of a foreign language is greatly assisted in his pursuit by whatever knowledge he may acquire of the life and all that helps to make up the life of the people whose language he is studying. It is unnecessary even to suggest what floods of light are every day poured over the pages of one's French or German books during a residence, even tho it be brief, in France or Germany. And how far is one thrust upon the way toward a comprehension of the Greek and Latin classics by a visit to the lands in which they were produced, albeit two thousand or more years ago! The impressions made upon the mind by a few days' exploration among the ruins of Pompeii recur almost continuously as one reads the language once spoken among those monuments so fortunately preserved. And if the student is denied access to such illuminative instruction he may in various ways make real to himself the lives of the men and women whose thoughts and desires and struggles made the literature which he is trying to appreciate. Books dealing with private antiquities are especially helpful. Who understands the poet's use of *subire* for the hitching of a draft animal to a cart without being able to picture the little beast actually under the yoke and therefore under a great part of the load? How is any meaning conveyed

¹Whitney.

by the writer's telling that the skipper lowered the sail so that the slightest breeze might not escape unless it is known that the ancient sail was reefed to the upper yard? The word "date" is not understood until there is a knowledge of the imperfections of the ancient postal system. The Greek poets' metaphors can hardly be read apart from the knowledge of how large a part of Hellenic life was made by hunting and rowing. If the schoolboy does not get to observe how Italian peasants carry earth up to their mountain-side terraces he is helped toward an understanding of Caesar's hardy soldiers, and their fighting and marching and digging of trenches, by observing how a gang of Italian laborers illustrates the national quality of *pazienza*.

The correspondence of language with racial characteristics is best appreciated in the study of an altogether strange tongue spoken by a very strange people. It is easy to observe how remarkably in keeping with the emotional and religious fervor of that race that has given religion to the modern civilized world is its pictorial, forceful and vivid language,—a language which because of its great deficiency of modal forms and paucity of connective particles is ill adapted to calm and reasoning philosophy. Hebrew syntax is a peculiar stringing together of simple and bald assertions. Metaphors abound. Especially characteristic of the spirit that was born and cradled in the deserts of Arabia is the Hebrew participle. Because of the absence of real tense limitations what may be called the moving picture idea of the participle is made to express, in a single word, on the one hand the feverish animosity that is born of the heat of the desert and the desert's deprivations and long enforced silences, and, on the other hand, all that vividness of imagination which comes from a desert life and the forced turning inward of the soul upon itself by day, and, secondly, from the influence of a wonderful night sky. So, for example, in Genesis 3:8 *mithhal-lek* says not alone then Yahweh walked in the garden as the day breathed, but it gives a cinematograph picture of him walking back and forth, back and forth, in the refreshing breeze. In Genesis 18:1 *yoshev* gives not merely a photograph of Abraham sitting in the opening of his tent. He also breathes the shadow of the oaks of Mamre as it moves along the ground with the pace of the sun and the air shimmers and quivers in the noon-day heat. Then, too, by its having the subject implicit the participle seems to express indefiniteness as great as its picturesqueness, a guardedness of expression that served well for the nomad of the desert who depended upon his own resources for protection, often in the midst of hated foes.

It is a Dane who has made the finest analysis of the genius of English. In his "Growth and Structure of the English Language" Professor Jespersen, of the University of Copenhagen, declares that the essential characteristic of the language spoken in England and America is masculinity. "It is the language of a grown-up man and has very little childish or feminine about it." It is a methodical, energetic, business-like and sober language that does not care much for finery and elegance and does care for logical

consistency. It is opposed to any attempt to narrow in life by police regulations and strict rules of grammar or of lexicon. As the language is so is the nation.

'In the English sound system the consonants are well defined and precisely pronounced. The vowel sounds are comparatively independent of surroundings. A language with no word ending in a consonant and with no group of two or more consonants sounds pleasantly, is full of music and harmony; but the total impression is childlike and effeminate. Not much vigor or energy is expected of the people speaking it. It is adapted to sunny regions where the soil requires scarcely any labor and where life does not wear the stamp of a hard struggle against nature and against fellow creatures. Such is the language of Hawaii in which almost every word ends in a musical vowel. Such, in a lesser degree, are Italian and Spanish. But Germanic tongues are different. English abounds in words ending in two or more consonants like "age," "wealth," "month." Energy is required to pronounce them.' And Jespersen is ungallant enough to say that "if briefness, conciseness and terseness are characteristic of the style of a man, while women as a rule are not so great economizers of speech, English is more masculine than any other language." 'Endings have been reduced to the shortest forms and in many cases have been done away with altogether. German says "*Alle diejenigen wilden Tiere die dort leben*" and expresses the plural in each word except the adverb. English makes the plural form in the single word "animal" and avoids the drawling effect of the German. Force and energy are illustrated by the English "First come, first served," compared with the German *Wer zuerst kommt, mahlt zuerst* and the French *Premier venu, premier moulu*. Similar business-like shortness is seen in such convenient abbreviations of sentences as abound in English: "While fighting in Germany he was taken prisoner;" "To be left till called for;" "We had no idea what to do." The relative pronoun is frequently omitted as is never the case in German, French or Spanish. In correspondence are such morphological shortenings as "cab" from "cabriolet" and "bus" from "omnibus."

'Masculinity is revealed also by the Englishman's dislike for committing himself by being too enthusiastic or distressed. Believing it to be affected or childlike or likely to make one appear ridiculous he shows no strong emotions. "That isn't half bad" or "She is rather good looking" is all he says when the Frenchman says *Charmant* or *Ravissante* or *Adorable*. The Englishman says "Great" or "Biggish"; the German *Kolossal* or *Pyramidalisch*. Diminutives in English are comparatively rare; but they abound in the other languages of western Europe.

'Business-like and virile qualities manifest themselves in English word order also, in the wonderfully precise and logically valuable distinction between "I write" and "I am writing" and in freedom from the narrow pedantry that sacrifices the logic of facts or of the exterior world to the logic of grammar. French is like the stiff garden of Louis XIV while English

is like an English park. For the French and the Italian vocabulary is determined by an academy. But the English have for centuries been great respecters of the liberties of each individual and everybody is free to strike out new paths for himself."

Now Latin is in a peculiar way well adapted to a study of this kind. It is a speech reduced to literary form after an existence of half a millenium as the means of communication of a powerfully energetic and progressive people. The idioms had been forged in the heat of Italian temperament when literary culture began to fix the language in the condition in which it found it and to assure to it the continuance of the formative processes then active in its development. The Italian was characterized by a strong and healthy vitality, by quick observation and ready resource, by a lively and emotional social temperament and by keen enjoyment of life. Upon these characteristics gravity and discipline were being imposed by the strict discipline of Roman life and by the sense of superiority which arises among the governing men of an imperial state. Then along with the "idea of government and the counseling of the steady acceptance of the real" began to work the "Hellenic idea of liberty and the Greek's resistless movement toward the ideal." The written language began to receive its "practical standard of thought and its almost faultless correctness of composition." From the outset of Rome's literature a knowledge of scientific grammar prevailed. "The Romans have with justice been called a nation of grammarians. The greatest commanders and statesmen did not disdain to analyse the syntax and to fix the spelling of the language. The result is that among Roman classical writers scarcely a sentence can be detected which defies critical analysis." "Latin is therefore fitted above all other languages for educational use and as long as a penetrating insight into syntactical structure is considered desirable so long will Latin offer the best field for obtaining it."¹

The peculiar thing next to be noted is that the grammatical idioms which may well be studied in comparison with Roman racial characteristics are found most abundantly in the writings in which the most Roman of the Romans records the most Roman of Roman achievements. And in the Gallic War, the first work of Latin literature with which the schoolboy generally becomes acquainted, the idioms are most frequent at the beginning.

To enumerate the cardinal Roman qualities is not difficult. No deep study of history nor wide reading of Latin literature is required for one to realize what were the qualities that raised to world wide supremacy that little settlement upon a site so apparently unpromising that in very early times a strange story was invented to account for its being chosen. The low hills of rock which rose among malaria-breathing marshes and around which later clustered so many patriotic legends were at first intensely prosaic. Life was maintained and growth was secured by a stern wrestling with the

¹ Cruttwell: Latin Literature.

hardships of the soil and with nature, there more unkind than even the valiant foe across the Tiber, a foe whose mighty arm was guided by Minerva rather than by Mars. Of necessity life was frugal, serious and stern. Of necessity hardihood and martial courage were developed. Of necessity the several settlements upon those low hills learned to stand together that they might not fall separately. Of necessity they learned, by conquering nature and human foes and themselves, *to rule*. They had little time for poetry if they had any inclination for it or anything in nature to incite them to it. Even the luxuriant superstition of the Italians, which found spirit in everything, was converted among such surroundings into a system of religion lifeless and extraordinarily formalistic. In later times these people scarcely indulged in any sport for sport's sake until the masses lost the national ideal, and the old racial gayety of temperament and love of excitement found gratification again in the hazardous games of the arena and the circus.

With the qualities that the city state acquired her language began to correspond. 'Some of the Roman critics themselves saw how their language, in its expressing practical notions in concrete terms, with force, directness and lucidity, was well suited to the national *potentia* and *gravitas*. They were conscious of the greatly superior harmony and subtleness of Greek diction. But they realized also that the surpassingly stately movement of the Latin period, the uniformity of the accent and the precision of the grammatical rules were in keeping with the qualities that contributed to maintain the stability and unity of the Roman republic and to the absence of which the multiplicity of the Greek states was largely due.'¹

Now in the examination of the more purely grammatical idioms it must be evident that many are racial rather than national in their character. Such being the case there are frequent similarities between the idioms of the Latin and those of its cognate the Greek. In general, in the brief discussion which is to follow, similarity or identity will be implied in the absence of statements to the contrary. But in many cases the peculiarity of the Latin idiom is extreme and in a few cases it is strikingly different from the Greek.

First there are Latin idioms in keeping with a thorough-going formalism. A race whose modern representatives love appointments as the Italians do, a race whose descendants in their home country require the presentation of visiting cards within forty-eight hours after an introduction to a married lady and some of whose families have their own private carriage doors so that the same carriage, but with different doors, may be used by several families, and in one of whose cities there was always inserted into a marriage contract, until recently, a proviso that the husband must take the wife out for a drive two hours daily—such a race may be supposed to reveal some formality in its language. The Latin does not permit one bluntly to say "Do not do that" but makes one say "Be unwilling to do that" (*Noli*

¹ A. S. Wilkins.

facere) or "Take care not to do that" (*Cave ne facias*) or "May it not prove to be the case that you have done that" (*Ne feceris*). The Greek expressed his commands more as Americans do. Formalistic precision is frequently displayed by exactness in the use of tenses, in both verbs and participles, (altho this is in some degree offset by frequent disregard of exactness) and by the use of *quo*, "whither," and *in* with the accusative where the English would more loosely speak of the "place *where* they brought their forces together." French, Italian and Spanish naturally agree with their ancestor in these particulars as they do to some extent in other idioms. German, even, is as a rule grammatically precise in talking about the place to which. But owing to the absence in English¹ of special forms for expressing these two special concepts all these idioms seem so strange to the average young English student that, failing to feel their force, expressions like *Roman ad Senatum* strike him as decidedly formal in contrast with our corresponding English expression "To the senate *at* Rome." In the Latin *Ei nomen erat Faustulo*, a form that does not occur in Greek, it is barely possible that the emphasis upon person and name yields an evidence of the dramatic in the Italian character.

That the ancient Romans were inclined toward the dramatic is indicated by the fact that at least three forms of the preliterate drama existed at the capital. The evidence is supported by the excessive fondness of the modern Italians for shows and spectacles of all kinds. In fact the theater may be said to furnish them their favorite and most important pastime. Attendance upon dramatic performances is not educative as it is in Germany, but is purely for amusement's sake. The newspaper reader has a pretty taste for horrors², just as his distant progenitor loved the excitement aroused by danger to life and limb in the sports of the amphitheatre and the race course. This fact, coupled with the fact that all primitive peoples make an extensive use of gesture to help out the function of language, which is the conveying of intelligence, accounts for not a few peculiarities of the Latin language. The schoolboy should read his Latin with much dramatic vehemence. He will then begin to appreciate the significance of such an order as *Caesar etsi idem quod superioribus diebus acciderat fore videbatur* in which the actor is emphasized. He will grasp more quickly, especially if he tries to picture the setting and to imagine the gestures, the meaning of a Ciceronian sentence in which occur two personal pronouns, and will understand better how *ille* came to mean "exalted," "majestic" and "famous." Thus, too, he will more perfectly comprehend the so-called dative of separation. Sometimes, however, it is the action which receives the dramatic emphasis at the expense of the actor as in *acriter pugnatum est*. The use of the historical present makes the narrative realistic. A present condition that has continued for some time is vivified in being expressed

¹ That is, in current English usage.

² Villari: Italian Life in Town and Country.

by the present with *iam pridem* or *iam dudum*. The so-called instantaneous perfect vividly presents the resulting scene. Similar is the phrase *erectum ingenium* which is to be translated "his aspiring nature." But more noteworthy is Latin concreteness. This quality, to be sure, is characteristic of all languages, in their earlier stages at least. Time and mental development are necessary to the evolution of abstractions. But altho Greek as well as Latin must refer to a constellation under the name of "seven plow oxen" when it wishes to indicate a northern direction, and altho the Italian goes further and refers to the northeast as *greco*, yet no language, probably, so often indicates an abstract idea by dramatically holding up to view a noun and then making a participle to agree with it. *Ab urbe condita*, "from the founding of the city," and *iniuria retentorum equitum Romanorum*, "the wrong done by detaining Roman knights," are familiar examples. That this form of expression involves a dramatic principle is proved by the fact that the gerundive is earlier than the gerund and is used much more frequently than the gerund. The Latin learned in time to say *confirmando pacem*, "by establishing peace"; it much prefers to say *pacem confirmandam*, literally "by peace to be established." Concrete expressions are also found in such phrases as *a pueris*, "in their boyhood" and *permulta audent*, "great is their daring." Striving after idealistic actuality is manifested by the use of the indicative when the subjunctive would be expected, notably in the apodosis of conditions in the contrary to fact class as in Ovid's *Quod si felicius essem, nec mihi coniugium fata importuna negarent, unus eras cum quo sociare cubilia vellem*, "But if I were more fortunate and if the cruel fates did not deny me marriage, you would be the only one with whom I should desire to unite my life." The fact that the Greek condition of the same type always uses the indicative is not pertinent inasmuch as there *ἄν* is employed.

'A tendency toward the dramatic, the formal and the manner of appearing is characteristic, to a greater or less degree, of all southerners. Warmth in the atmosphere creates a marked repugnance for anything that is un-aesthetic. Dirty fluids, insects in the soup and the like offend more in heat than in cold.¹ This is true even though the traveller might wish that many of the denizens of southern Italy were more æsthetic. And since the admirable mimetic powers and the fondness of appearance, on the part of the Italians, imply liveliness and mobility of temperament it is evident that these latter qualities also can be found in certain linguistic formulae. Sometimes it is difficult to say whether the idiom illustrates the dramatic and the spectacular or the excitable, the passionate and the impulsive in the genius of the ancient inhabitants of the peninsula. An example is the not infrequent compression of an idea into a noun and its participle as in Virgil's *moritura Dido*, "the thought that Dido is about to die." Impulsiveness and excitability are exhibited also in the Latin's repeated attempt to say two things

¹ C. D. Pflaum, quoted in the Review of Reviews.

at once as in Livy's *Temptata est exigua pacis spes*, "Tho they realized that there was little hope of peace they made an attempt to obtain it" and *Versa acies haud dubium fecit*, "The soldiers wheeled to resist the attack and (by the difficulty they had in resisting) showed plainly that." The same qualities are more frequently shown by the omission of words in common phrases. This is true of all languages, especially of the colloquial speech. Sometimes one hears in English "I want out" and one may even read "But the Son of Man hath not where to lay his head." Let in Latin such concise phrases are exceedingly common, e. g., *In summo monte; quam maximus itineribus; alius alia ex nave*. The origin of the puzzling use of *ac* in expressions of unlikeness goes back to the antithesis of sentences. *Sed ratio ordoque agminis aliter se habebat ac Belgae ad Nervios detulerant* really means to say that the order of march was of one sort and the Belgians reported an order of a different sort. Somewhat similar is the impulsive juxtaposition of two ideas introduced by *ita * * * ut* with the reader left to deduce the antithesis and to translate by "altho * * * yet." The defining relative clause as a rule can not wait for its logical antecedent. *Quae pars ea* is the usual order. Latin word order in general displays the excitable, passionate and impulsive nature of the Italians.

Thus spoke the ancient Romans, a people who added tremendous energy to the nervously excitable temperament of the Italian race. It is possible even further to exemplify this nervous energy so apparent in the language. The Roman was always in tremendous haste to reach the main idea. Subsidiary acts and explanatory statements had to be content with being expressed by a participle, attached if possible. Sometimes it would be unattached as in the phrase *de improviso*, which, because of its meaning, seems to be the only one of the many that English has retained in "of a sudden." There was no time nor patience to use an article definite or indefinite, nor, in the earlier period, a preposition, until later adverbs came to be used as prepositions for the sake of greater precision and definiteness. The student should carefully observe this tendency because in some later writers it is exaggerated. Where Caesar uses five participial clauses Livy has sixteen and Tacitus twenty-four.¹ Nervous energy is repeatedly emphasized by words which must be explained by the context. *Hoc metu* is equivalent to *Huius rei metu* and *Qua spe adducti* means *Cuius rei spe adducti*. The quality is exemplified again in the objectively taking of a point from which to reason or to measure or to locate, as in *Caesar Pompeio melior est*, that is to say measuring from Pompey as a standard; *Victoriam de Hannibale*, a phrase curiously paralleled by the baseball language in "so many hits off a pitcher;" *a novissimo agmine* and *a dextro cornu* for the English "in the rear" and "on the right wing:" Greek says ἐπί. The Latin even measures to an objective point. "A trench twenty feet deep" is *Fossa in altitudinem pedum viginti*. *Ad* with numerals means "about." Ovid could write even

¹ A .S .Wilkins.

in quantum quaeque secuta est for "at the point each one reached in her pursuit." The completion rather than the progress of an action is noted by a phrase like *erectum ingenium*, quoted above, for "his aspiring nature."

In conclusion, to quote again from the one whose words were used in the introduction, "Man is first and foremost a social being; language is the social bond and man's badge of membership in the body social, the embodiment of the nature and spirit of that social fabric to which the individual owes allegiance and thru which he becomes a man. The budding bit of personality must come to recognize the authority of society. It is the mission of language and literature in education to bring young individual life into accord with the molds of historic life. The form of reasoning to which a child is stimulated in catching the meaning of sentences of the mother speech, or which a boy uses in making out the meaning of a sentence in his Caesar from the imperfect data of words and syntax, are forms of contingent reasoning, the ones which are almost exclusively employed in the decisions and judgments of actual life. Men who pretend to regulate their lives according to well constructed syllogisms,—and it must be pretense or self deception, for there are no such syllogisms in *life*,—are generally regarded as impossible men."

SYNOPSIS OF BUSINESS MEETING

UNIVERSITY HALL, March 29, 1907.

The meeting was called to order by President David Mackenzie. The minutes were read and approved. Reports were made by the secretary, the treasurer, and the auditing committee.

FINANCIAL REPORT OF THE SECRETARY.

Receipts.

March 1, 1906—Balance	\$ 76.61
March 23, 1906—Deposited fees	33.00
March 28, 1906—Deposited fees	35.50
March 31, 1906—Deposited fees from treasurer.....	255.00
April 21, 1906—Deposited fees	9.00
May 16, 1906—Deposited fees	13.00
June 16, 1906—Deposited fees	4.00
Dec. 12, 1906—Deposited from sale of books to Normal College...	50.00
Feb. 15, 1907—Deposited from sale of books to U. of M.....	70.00
Total receipts	<u>\$546.11</u>

Disbursements.

March 3, 1906—Check No. 37, for postage.....	\$ 1.00
March 14, 1906—Check No. 38, for postage	10.00
March 21, 1906—Check No. 39, for postage.....	5.00
March 22, 1906—Check No. 40, for postage	5.00
April 2, 1906—Check No. 41, for badges	7.50
April 2, 1906—Check No. 42, to Professor John Dewey.....	45.00
April 2, 1906—Check No. 43, for clerk hire for year.....	24.60
April 21, 1906—Check No. 44, for janitor	1.50
April 21, 1906—Check No. 45, for miscellaneous expense.....	3.40
May 28, 1906—Check No. 46, to Professor J. T. McManis.....	1.50
June 25, 1906—Check No. 47, for postage	2.00
Sept. 10, 1906—Check No. 48, for postage	10.00
Sept. 13, 1906—Check No. 49, for postage	10.00
Oct. 18, 1906—Check No. 50, for postage	2.00
Oct. 18, 1906—Check No. 51, for printing	200.00
Oct. 18, 1906—Check No. 52, Physics Conference	1.75
Oct. 18, 1906—Check No. 53, postage	2.00
Jan. 5, 1907—Check No. 54, for printing	116.15
Feb. 12, 1907—Check No. 55, for postage	2.00
Feb. 19, 1907—Check No. 56, for Railroad rates	6.00

Total expenditures	<u>\$456.40</u>
Balance on hand March 1.....	89.71
Total	<u>\$546.11</u>

MICHIGAN SCHOOLMASTERS' CLUB

REPORT OF THE TREASURER.

Receipts.

March 1, 1906—Balance	\$ 76.61
March 29, 1906—received from dues	255.00
March 29, 1906—received from Secretary	214.50
Total	<hr/> \$546.11

Disbursements.

Paid through the Secretary Checks Nos. 37-56.....	\$456.40
Balance in bank March 1, 1907.....	89.71
Total	<hr/> \$546.11

REPORT OF THE AUDITING COMMITTEE.

We have examined the reports of the Secretary and Treasurer and find them correct.

B. W. PEET,
E. W. Dow,
Auditing Committee.

COMMITTEE ON RESOLUTIONS.

President, L. H. Jones—Normal College.
Superintendent W. A. Greeson—Grand Rapids.
Superintendent S. O. Hartwell—Kalamazoo.

(The report of the committee is printed on page 139.)

REPORT OF LIBRARY COMMITTEE.

The report of the committee was read by B. A. Finney, of the University Library. It was accepted and the committee discharged.

NOMINATING COMMITTEE.

Appointed Thursday morning, March 28.

Webster Cook, representing the club at large—Saginaw.
W. L. Wright, representing the club at large—Benton Harbor.
L. P. Jocelyn, representing the club at large—Ann Arbor.
Walter Denison, representing the Classical Conference—University.
H. N. Chute, representing the Physics Department—Ann Arbor.
N. G. Kirby, representing the Chemical Conference—Mt. Clemens.
Clara O. Jamison, representing the Biological Conference—Lansing.
E. A. Lyman, representing the Mathematical Conference—Normal College.
J. B. Davis, representing the Historical Conference—Detroit.
A. G. Canfield, representing the Modern Language Conference—University.
Mary E. S. Gold, representing the English Conference—Flint.

REPORT OF THE NOMINATING COMMITTEE.

President, Wm. A. Greeson—Grand Rapids.
Vice-President, Florence Milner—Detroit.
Secretary, Louis P. Jocelyn—Ann Arbor.
Chairman of Classical Conference—M. L. D'Ooge—University.

Secretary of Classical Conference—B. L. D'Ooge—Normal College.
 Chairman of Physics and Chemical Conference—N. F. Smith—Olivet College.
 Vice-Chairman of Physics and Chemical Conference—B. W. Peet—Normal College.
 Secretary of Physics and Chemical Conference—De Forest Ross—Ypsilanti.
 Chairman of Mathematical Conference—C. B. Williams—Kalamazoo College.
 Secretary of Mathematical Conference—L. C. Karpinski—University.
 Chairman of Modern Language Conference—Max Winkler—University.
 Secretary of Modern Language Conference—J. R. Effinger—University.
 Chairman of Historical Conference—E. W. Dow—University.
 Secretary of Historical Conference—Edith Kimball—Detroit.
 Chairman of English Conference—Cornelia S. Hulst—Grand Rapids.
 Secretary of English Conference—Mary Lowell—Western Normal.
 Chairman of Biological Conference—S. O. Mast—Hope College.
 Secretary of Biological Conference—Ella Bennett—Ann Arbor.

REPORT OF COMMITTEE ON RESOLUTIONS.

Since the last meeting of the Schoolmasters' Club we have lost by death two of our most active and helpful members,—Daniel Putman, so long Professor of the Science and Art of Education in the State Normal College, and A. J. Volland, for eleven years the efficient principal of the Grand Rapids High School. We shall honor ourselves even more than we do the memory of these distinguished dead, if we pause a moment in our exercises to reflect upon the professional and personal virtues of these, our former honored members.

Dr. Daniel Putman was born and reared in New England, taking his bachelor's degree from Dartmouth College. Soon after reaching manhood, however, he came to Michigan, in whose public service he spent the years of a long and honored life. None knew him but to love him; and some of us might fitly characterize him as not only the man we knew best, but the best man we knew. Never by teaching or example did he lower the ideal standard of manhood for any student.

Mr. A. J. Volland was purely a Michigan product. Born in Ann Arbor and educated in the great University in whose halls we are met, he was ever a loyal son of his Alma Mater. But he was more than this—an earnest, thoughtful, sane educational leader in his chosen province. The cause of secondary education in Michigan can illy spare him from its working forces.

Whereas, the Michigan Schoolmasters' Club, met in its 42d annual session, desires to commemorate the lives and services of these, our former loved associates: Be it resolved, that we shall ever strive to remember their lofty example and to emulate their noble deeds.

L. H. JONES, Chairman.
 W. A. GREESON.
 S. O. HARTWELL.

PROGRAM OF GENERAL SESSIONS

Thursday Morning

General Topic:—What should be expected of the High School by the College?

1. From the Standpoint of the University,
Professor A. G. Canfield, University of Michigan.
 2. From the Standpoint of the College,
President J. L. Snyder, Agricultural College.
 3. College Influence and High School Development,
Principal Webster Cook, Saginaw.
 4. Education and College Preparation,
Principal N. B. Sloan, Lansing.
 5. Open Discussion.
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Thursday Afternoon

Musical Program:—By Members of the University School of Music.

Thursday Evening

Address:—Difficulties in Teaching Modern Languages,
Professor Charles H. Grandgent, Harvard University.
(A Reception was held after the Address)

Friday Morning

1. Physics Teaching in High School and College,
Professor J. O. Reed, University of Michigan.
 2. Physics in the High School,
Supt. L. E. Amidon, Iron Mountain.
 3. A Two Part Course for High School Physics,
Mr. L. S. Parmelee, Flint.
 4. Business Meeting.
-

Friday Afternoon

Young Ladies' Classes in Gymnastic Drills, and Basket Ball Game.

Friday Evening

Popular Illustrated Lecture on Polarized Light,
Professor Dayton C. Miller, Case School of Applied Science, Cleveland, Ohio.

PROGRAM OF CONFERENCES

CLASSICAL CONFERENCE

Wednesday Morning

1. Virgil's Use of Historical Material,
Professor J. O. Kinnaman, Benton Harbor College.
2. Caesar in Pre-Shakespearean English Literature,
Dr. Loura B. Woodruff, University of Michigan.
3. A Commentary on Virgil's Aeneid IV, 246 f f, *
Professor Arthur Fairbanks, University of Michigan.
4. Reflection of National Characteristics in Latin Idiom,
Professor Frank B. Meyer, Hillsdale College.
5. The Camp of Saalburg: Its Remains and its Restoration,*
Professor F. W. Shipley, Washington University, St. Louis.
6. Recent Progress in Latin Syntax,
Professor Clarence Linton Meader, University of Michigan.

Wednesday Afternoon

7. The Attitude of Luther toward Language Study and the Teaching of Latin,
Dr. W. W. Florer, University of Michigan.
8. Women in the Ancient City,
Miss Edith Emma Atkins, Lansing High School.

SYMPOSIUM †

- on the Value of Humanistic, and particularly Classical, Studies as a Preparation for the Study of the Professions: LAW.
9. Address: The Value to the Lawyer of Training in the Classics,
Merritt Starr, Esquire (Peck, Miller and Starr), of the Chicago Bar.
 10. Address: The Study of Greek and Latin as a Preparation for the Study of Law,
Lynden Evans, Esquire, of the Chicago Bar.
 11. Discussion, from the Point of View of the Law School,
Harry B. Hutchins, Dean of the Department of Law, University of Michigan.

* Illustrated with the Stereopticon.

† The Symposium will be continued with a discussion of the value of humanistic studies as a preparation for the study of Theology, at the Classical Conference of 1908. The papers and discussions of the Symposium on the Value of Humanistic Studies as a Preparation for the Study of Law will be published in the School Review for June.

12. Discussion, from the Point of View of Legal Practice,
Hon. Harlow P. Davock, of the Detroit Bar.
Hinton E. Spalding, Esquire (Walker and Spalding), of the Detroit Bar.

Wednesday Evening

13. Lecture before the Classical Conference and the Philological Association of the University of Michigan: The Art of Ancient Etruria,*
Professor Gordon J. Laing, University of Chicago.

Thursday Afternoon

14. The Classical Club of the Lewis Institute and its Reproductions of Scenes of Greek and Roman Life,*
Professor J. R. Nelson, Lewis Institute, Chicago.
 15. Should our High School Courses be extended downward into the seventh and eighth Grades: The Point of View of a Department of Latin,†
Professor Andrew F. West, Dean of the Graduate School, Princeton University.
 16. Should our High School Courses be extended downwards: The Point of View of a Department of Education,†
Professor Allen S. Whitney, University of Michigan.
 17. Discussion of the papers numbered 15 and 16,
Superintendent J. Stanley Brown, Joliet, Illinois.
Professor B. L. D'Ooge, State Normal College, Ypsilanti.
- School Review for March.
18. The Extended Latin Course and the Test of Experience,
Principal Webster Cook, Saginaw.
 19. General Discussion of the Extended Latin Course.
 20. Summing up of the discussion, by the Chairman.

CONFERENCE OF CHEMISTRY

Thursday Afternoon

1. The Relation of Color to Chemical Constitution,
Dr. William J. Hale, University of Michigan.

SYMPOSIUM.

- I. What to Put in a Note-book.
 - II. When and Where Should the Note-book be written up.
 - III. Correction of Note-books.
2. Mr. F. C. Irwin, Central High School, Detroit.

* Illustrated with the Stereopticon.

† Outlines of the Papers of Professors West and Whitney are published in the

3. Mr. H. S. Reed, Michigan Agricultural College.
 4. Mr. A. E. Parkins, Holland High School.
 5. Mr. H. C. Doane, Grand Rapids High School.
 6. Discussion, Led by Mr. W. J. Matthews, Western High School, Detroit.
 7. Definition of an Atom,
Mr. William G. Smeaton, University of Michigan.
-

CONFERENCE OF PHYSICS

Friday Afternoon

1. Some Laboratory Methods,
Mr. W. M. Mills, Battle Creek High School.
 2. A study of Accelerated Motion by Inclined Plane,
Mr. B. F. Brown, Petoskey High School.
 3. Duff's Apparatus,
Professor E. A. Strong, Michigan State Normal College.
 4. A New Boyle's Law Apparatus,
Professor H. L. Curtis, Michigan Agricultural College.
 5. The Power Plant at the Victoria Mine,
Mr. D. W. Caldwell, Champion High School.
 6. Report of the Committee on a Revised List of Experiments in Physics
for Michigan High Schools,
Mr. H. N. Chute, Ann Arbor High School.
 7. Discussion.
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Saturday Morning

1. The Preparation of the Child for Science,
Professor C. R. Mann, University of Chicago.
 2. The Work of the Bureau of Standards,
Dr. S. W. Stratton, Director, Washington, D. C.
 3. The American Federation of Teachers of Science and Mathematics,
Professor C. R. Mann, Secretary.
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JOINT MEETING BIOLOGICAL CONFERENCE AND SCIENCE TEACHING

Friday Afternoon

1. Human Physiology in the Grades,
Supt. Charles W. Mickens, Adrian.
2. Human Physiology in the High School,
Miss Grace Frances Ellis, Central High School, Grand Rapids.

3. Human Physiology in the High School,
Professor S. D. Magers, State Normal College.
Discussion:
Professor W. E. Praeger, Kalamazoo College.
Miss Edith E. Pettee, Eastern High School, Detroit.
Supt. Alvin N. Cody, Flint.
 4. Methods in Plant Physiology—Light as a Formative Influence,
Dr. Alfred Dachnowski, Michigan Military Academy.
Discussion:
Mr. E. L. Scott, Bay City, West Side.
Dr. J. B. Pollock, University of Michigan.
An Automatic Aerating Device for Aquaria in Class Room,
Dr. L. Murbach, Central High School, Detroit.
An easy Method of preparing Histological sections of Bone,
Professor S. D. Magers.
-

MATHEMATICAL CONFERENCE

Thursday Afternoon

1. Discussion of Proposed Reforms in the Teaching of Mathematics in Germany,
Professor W. W. Beman, University of Michigan.
 2. What shall be included in the High School Course in Mathematics, and why?
Professor E. A. Lyman, Michigan State Normal College.
 3. Several short papers and general discussion.
-

JOINT ENGLISH AND HISTORICAL CONFERENCE

Thursday Afternoon

- General Subject:—Desirable Relations between English and History in the Schools.
1. The Historical and Biographical Background in Literature,
Professor R. M. Lovett, English Department, University of Chicago.
 2. Mythology and the Child,
Miss Mary Lowell, English Department, State Normal, Kalamazoo.
 3. Correlation of History and English, with Reference to their Study in the Schools,
Professor Frederic L. Paxson, Department of American History, University of Michigan.
 4. Discussion.

HISTORICAL CONFERENCE AND JOINT HISTORICAL AND ENGLISH CONFERENCE

Friday Afternoon

1. Second Report of Committee on Recent Publications of Special Interest to Teachers of History,
Principal Webster Cook, Saginaw High School, Chairman;
Professor A. L. Cross, University of Michigan;
Mr. C. H. Estrich, Northern State Normal, Marquette.
2. Schemes for Securing Accuracy and Interest, in the Study of History in the Schools: A Discussion with Exhibit,
In charge of Miss Edith Kimball, of Detroit.

This part of the program was arranged as an experience meeting, in which various teachers of history set forth original or especially successful ways and means they have for encouraging accuracy and interest among their pupils. The exhibit included devices and bits of illustrative material in large number.

General Subject:—Desirable Relations between English and History in the Schools, in the Light of Local Plans and Experience.

3. The Movement for Better Teaching of English in Chicago,
Mr. J. F. Hasic, Head of the English Department, Chicago Normal School.
4. The English Course in the Grand Rapids High Schools,
Mrs. Cornelia Steketee Hulst, Central High School, Grand Rapids.
5. The Attempt at Correlation of History and English Courses in the Detroit Home and Day School,
Miss Mary Mumford, Detroit.
6. Discussion.

MODERN LANGUAGE CONFERENCE

Wednesday Afternoon

1. Ludwig Uhland,
Miss Miriam Goldman, Central High School, Detroit.
2. Notes on the Historical and the Legendary Character of the Cid,
Mr. Douglas Macduff, University of Wisconsin.
3. German Classicism,
Dr. John W. Scholl, University of Michigan.
4. Maurice Barrés,
Professor J. R. Effinger, University of Michigan.

Thursday Afternoon

1. Some Problems in Teaching German Grammar,
Miss Nellie Hamilton, Ann Arbor High School.

2. The Teaching of German Poetry in the High School,
Miss Elizabeth Zimmerman, Kalamazoo Normal School.
 3. German History in the Class Room,
Mr. Emil Albrecht, Central High School, Detroit.
 4. The Teaching of German Grammar,
Professor Johannes Zedler, Albion College.
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JOINT SESSION OF THE CLASSICAL AND MODERN LANGUAGES CONFERENCE

Thursday Evening

Address:—Difficulties in Teaching Modern Languages,
Professor C. H. Grandgent, Harvard University.

At the close of the Session those attending the Conferences were invited to come to the parlors on the first floor to meet the speakers of the conference and the officers of the Schoolmasters' Club.

Friday Afternoon

1. How shall we teach Literature?
Professor S. B. Harvey, Hillsdale College.
2. The Present Position of Spanish in our Schools,
Dr. Charles P. Wagner, University of Michigan.
3. The Place of Philology and Historical Grammar in the Teaching of
Elementary French,
Dr. Herbert H. Vaughan, University of Kansas.
4. The French Lycée,
Mr. William A. McLaughlin, University of Michigan.

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